# THIRD-PARTY MAINTENANCE ALTERNATIVES

INPUT
LIBRARY

# ABOUT INPUT

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, communications and office products and services.

The company carries out con
research. Working closely w
tant issues, INPUT's staff m
interpret the research data,
mendations and innovative i
needs. Clients receive re
access to data on which an
continuous consulting.

Many of INPUT's professional staff members have nearly 20 years experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed in 1974, INPUT has become a leading
ting firm. Clients include
d's largest and most techni-
es.

Y-MSI
MSI
Smith, Walter
AUTHOR
Third-Party Maintenance Alter-
natives.
4/81

**Headquarters**
2471 East Bayshore Road
Suite 600
Palo Alto, California 94303
(415) 493-1600
Telex 171407

**Los Angeles**
4676 Admiralty Way
#401 C
Marina Del Rey, California
(213) 823-1230

ain Street
, Michigan 48170
9-8730

on, D.C.
rth Lynn Street
0
, Virginia 22209
2-2118

**UNITED KINGDOM**
INPUT, Ltd.
Airwork House (4th Floor)
35 Piccadilly
London, W.1.
England
01-439-4442
Telex 269776

INPUT Japan
Suite 1106
7-7-26 Nishi-Shinjuku
Tokyo
Japan 160
(03) 371-3082

ATES

**Australia**
Infocom Australia
Highland Centre, 7-9 Merriwa St.,
P.O. Box 110,
Gordon N.S.W. 2072
(02) 498-8199
Telex AA 24434

**Italy**
PGP Sistema SRL
20127 Milano
Via Soperga 36
Italy
Milan 284-2850

INPUT Planning Services for Management

X-PRO
812

000006

# THIRD-PARTY MAINTENANCE ALTERNATIVES

Prepared For:

MSI DATA CORPORATION

INPUT LIBRARY

APRIL 1981

Digitized by the Internet Archive
in 2015

https://archive.org/details/thirdpartymainteunse_0

# THIRD-PARTY MAINTENANCE ALTERNATIVES

## ABSTRACT

This study evaluates twenty vendors as potential third-party maintenance partners for MSI Data Corporation. Criteria such as product characteristics, growth and vendor profiles are considered in the selection.

Five vendors are selected for further analysis through interviews with the users of their equipment. Recommendations are made for each of the five vendors and for the entire subject of third-party maintenance as a business opportunity for MSI Data.

Y-MSI-10
April 1981
INPUT

THIRD-PARTY MAINTENANCE ALTERNATIVES

TABLE OF CONTENTS


| | | Page |
|---|---|---|
| I | INTRODUCTION | 1 |
| | A. Scope | 1 |
| | B. Methodology | 2 |
| II | EXECUTIVE SUMMARY | 5 |
| | A. Overall Market Opportunity | 5 |
| | B. Comparison Of Vendors | 6 |
| | C. Recommendations By Vendor | 14 |
| | D. Overall Recommendations | 18 |
| III | RESULTS OF THE VENDOR SURVEY | 21 |
| | A. The Selection Process | 21 |
| | B. Overview Of Vendors Interviewed | 24 |
| | C. Profiles Of Vendors Interviewed | 29 |
| | 1. Datum | 29 |
| | 2. Caere | 30 |
| | 3. Bitek | 31 |
| | 4. Innovative Data Technology | 32 |
| | 5. General Terminal Corporation | 34 |
| | 6. Datasouth | 35 |
| | 7. BGL Technology Corporation | 37 |
| | 8. Artolonics (Subsidiary Of Shell Of Canada) | 38 |
| | 9. Charles River Data | 38 |
| | 10. National CSS (Subsidiary Of Dun & Bradstreet) | 39 |
| | 11. QI Corporation | 41 |
| | 12. Computer Link Corporation | 42 |
| | 13. Computek | 43 |
| | 14. Delta Data Systems | 44 |
| | 15. Dataroyal | 45 |
| | 16. Findex | 46 |
| | 17. Interface Systems, Inc. | 47 |
| | 18. Intelligent Systems | 48 |
| | 19. Intertec | 49 |
| | 20. Datamedia Corporation | 50 |
| IV | RESULTS OF THE USER SURVEY | 53 |
| | A. Structure Of The User Survey | 53 |

| | | Page |
|---|---|---|
| B. | Results Of The User Survey | 54 |
| 1. | Bitek Users | 54 |
| 2. | Intelligent Systems Users | 57 |
| 3. | Datamedia Users | 60 |
| 4. | Dataroyal Users | 63 |
| 5. | Datasouth Users | 65 |
| V | THIRD-PARTY MARKETS ..... | 69 |
| A. | The Overall Market - Keys To Profit | 69 |
| B. | Leading Vendors In Third-Party Maintenance | 73 |
| C. | Keys To Profit | 73 |
| APPENDIX: | QUESTIONNAIRES ..... | 83 |
| | User | 83 |
| | Vendor | 86 |

THIRD-PARTY MAINTENANCE ALTERNATIVES

## LIST OF EXHIBITS


| | | | Page |
|---|---|---|---|
| II | -1 | Summary Of Vendors Selected | 7 |
| | -2 | Overall Equipment And Maintenance Ratings By Users Of The Five Vendors Evaluated | 8 |
| | -3 | A Comparison By Topic Of The Five Vendors Evaluated | 10 |
| | -4 | A Comparison Of Minimum Acceptable And Ideal Mean Times To Respond And Repair | 13 |
| | -5 | Comparison Of Users' Willingness To Perform Their Own Maintenance | 15 |
| III | -1 | Overall Methodology For The MSI Data Study | 25 |
| | -2 | Profile Of The First Ten Vendors Interviewed | 26 |
| | -3 | Profile Of The Second Ten Vendors Interviewed | 28 |
| IV | -1 | Rating Of Maintenance And Equipment By Users Of Bitek | 56 |
| | -2 | Rating Of Maintenance And Equipment By Users Of Intelligent Systems | 58 |
| | -3 | Rating Of Maintenance And Equipment By Users Of Datamedia | 62 |
| | -4 | Rating Of Maintenance And Equipment By Users Of Dataroyal | 64 |
| | -5 | Rating Of Maintenance And Equipment By Users Of Datasouth | 67 |
| V | -1 | Leading Third-Party Vendors In EDP Equipment | 74 |
| | -2 | Maintenance Price Range By Equipment Type | 75 |
| | -3 | Maintenance Pricing Of Selected Vendors Of Small Business Computers And Minicomputers | 77 |
| | -4 | Maintenance Pricing Of Selected Vendors Of Peripherals | 78 |
| | -5 | Maintenance Pricing Of Selected Vendors Of Terminals | 80 |
| | -6 | Depot Maintenance Example: IBM 3101 Versus IBM 3278 Model I | 81 |

# I INTRODUCTION

# I INTRODUCTION

## A. SCOPE

- This study was undertaken by INPUT on behalf of MSI Data Corporation from November 1980 through March 1981.

- The scope of the project was to investigate alternative vendors for whom MSI Data might offer third-party maintenance that will use existing assets at MSI, including the technical field force and MSI Data's multiple depot maintenance facilities.

- This report contains the results of two surveys - one of vendors and one of users.

  - Data and comments of those interviewed are tabulated and analyzed.

  - Recommendations for action by MSI are included.

  - An analysis of third-party markets drawn from secondary research data available to INPUT is included to complete the project.

- MSI is invited to discuss any aspect of this project with INPUT staff; the objective is to achieve a full delivery of the information and conclusions developed in performing this study.

## B. METHODOLOGY

- The basic concept of the project was that INPUT would use the experience and knowledge of MSI field service management in targetting the research. As such, reviews were held throughout the project.

- A phased approach was used:

  - The first phase was a survey of vendors who met certain criteria determined by MSI and INPUT to be essential in a viable third-party partner.

    . Over 2,000 vendors were screened by INPUT.

    . Forty-nine vendors were contacted by INPUT, of whom 20 were interested in a third-party relationship.

    . These 20 were interviewed by INPUT. A copy of the vendor questionnaire which was used is included in the Appendix of this report.

    . Results of the 20 interviews were forwarded to MSI for review.

  - The second phase was to interview 10 users from each of five vendors selected by MSI as most promising from the 20 interviewed.

    . The objective of these user interviews was to determine the maintainability and general user experience of the equipment being considered.

    . Names of the users were obtained by INPUT from the vendors.

- A presentation of results was made by INPUT to MSI in February 1981. This report is part delivery of the project. Inquiries from MSI Data about the report or other aspects of the study are welcome.

# II EXECUTIVE SUMMARY

# II EXECUTIVE SUMMARY

## A. OVERALL MARKET OPPORTUNITY

- The market for third-party maintenance that could be performed by MSI Data is open to MSI Data. The availability of this market was verified by vendor and user interviews done for this study:

  - Of 49 vendors contacted, 20 were interested in developing a third-party relationship with a vendor of field service.

  - Of 49 users contacted, over half were interested in having third-party maintenance provided by a vendor.

- The total third-party market in the U.S. is approaching $1 billion per year and growing at 15% per year.

  - MSI's capabilities match a significant portion of this market.

  - A major task is to select the vendors who offer the optimum opportunity in terms of product, size, growth and compatibility with MSI's capabilities.

  - For the longer term, MSI's capabilities can be enhanced to address wider sectors of the total market.

- MSI's immediate target of $100,000 of third-party revenues is well within reach.

## B. COMPARISON OF VENDORS

- The five vendors selected by MSI from the profile of 20 interviewed by INPUT were compared by interviewing users of their equipment.
  - The user interviews were targetted to reveal any potentially unmaintainable equipment.
  - The interviews also provided insight into marketing techniques which will be successful in developing revenues among those vendors selected.
  - The vendors selected are listed in Exhibit II-1.
- Users were asked to rate the equipment and maintenance of the vendors.
  - As shown in Exhibit II-2, all vendors were acceptable in both categories.
  - Datasouth rated highest by a significant margin.
- The issue of maintenance was further evaluated according to nine subcategories selected jointly by MSI Data and INPUT as being descriptive of a third-party maintenance prospect:
  - Mean time between failures (MTBF).
  - Quality of spare parts.
  - Availability of spare parts.

EXHIBIT II-1

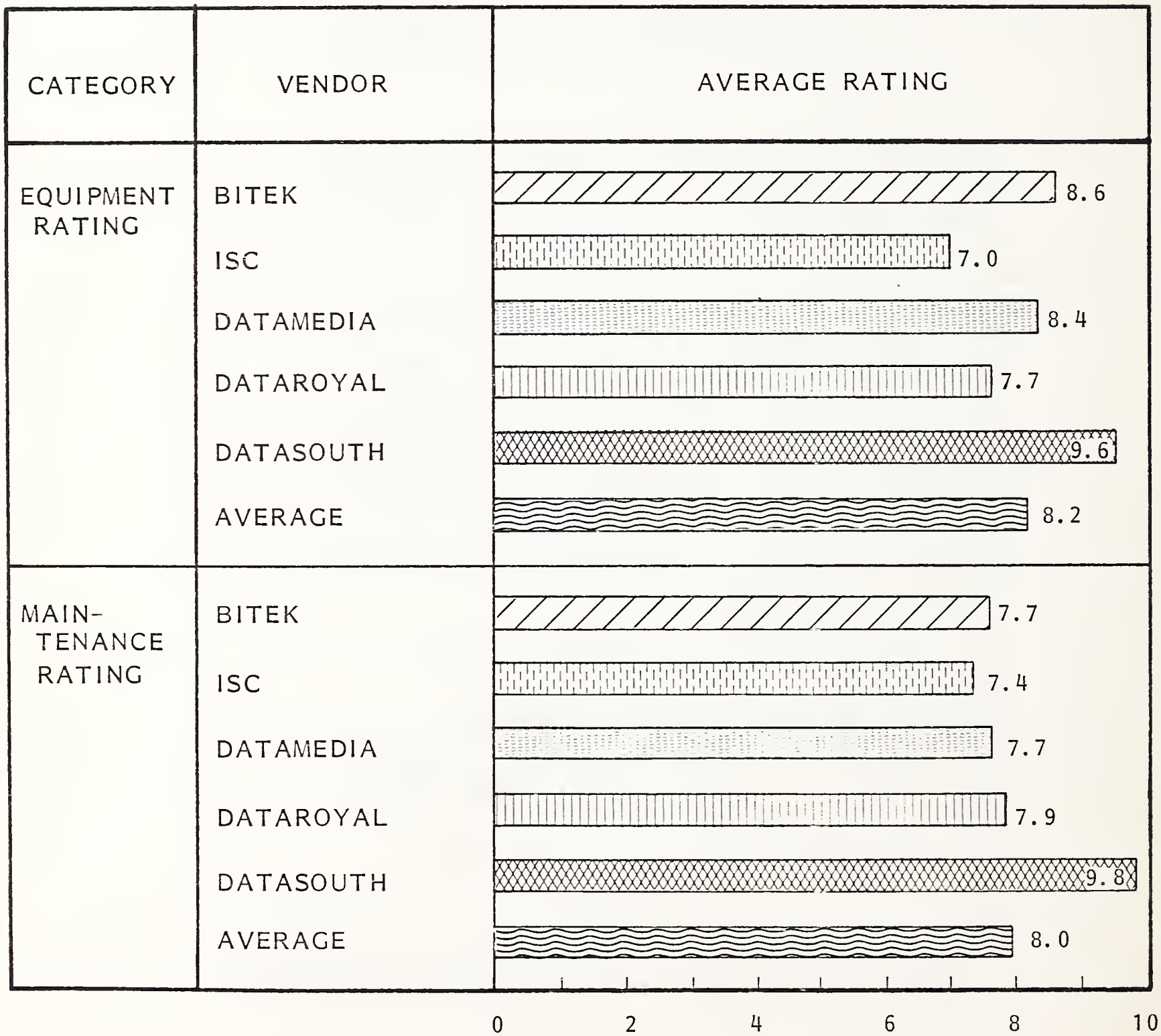
SUMMARY OF VENDORS SELECTED

| VENDOR | PRODUCT |
|---|---|
| • TOP 5 | |
| DATAMEDIA | VIDEO DISPLAY |
| INTELLIGENT SYSTEMS | COLOR TERMINAL |
| BITEK | TELEPHONE MGT. |
| INTERFACE SYSTEMS* | CRT/GRAPHICS |
| INTERTEC* | TERMINALS AND MICROS |
| • SECOND TIER | |
| DATASOUTH | PRINTER |
| GENERAL TERMINAL | TERMINAL |
| Q-1 | SMALL OFFICE COMPUTER |
| DATAROYAL | PRINTERS |

*DECLINED TO PROVIDE USER NAMES. WERE REPLACED BY DATASOUTH AND DATAROYAL IN THE USER INTERVIEW PORTION OF THE PROJECT.

EXHIBIT II-2

OVERALL EQUIPMENT AND MAINTENANCE RATINGS
BY USERS OF THE FIVE VENDORS EVALUATED




RATING: 0 = VERY POOR, 5 = NEUTRAL, 10 = EXCELLENT

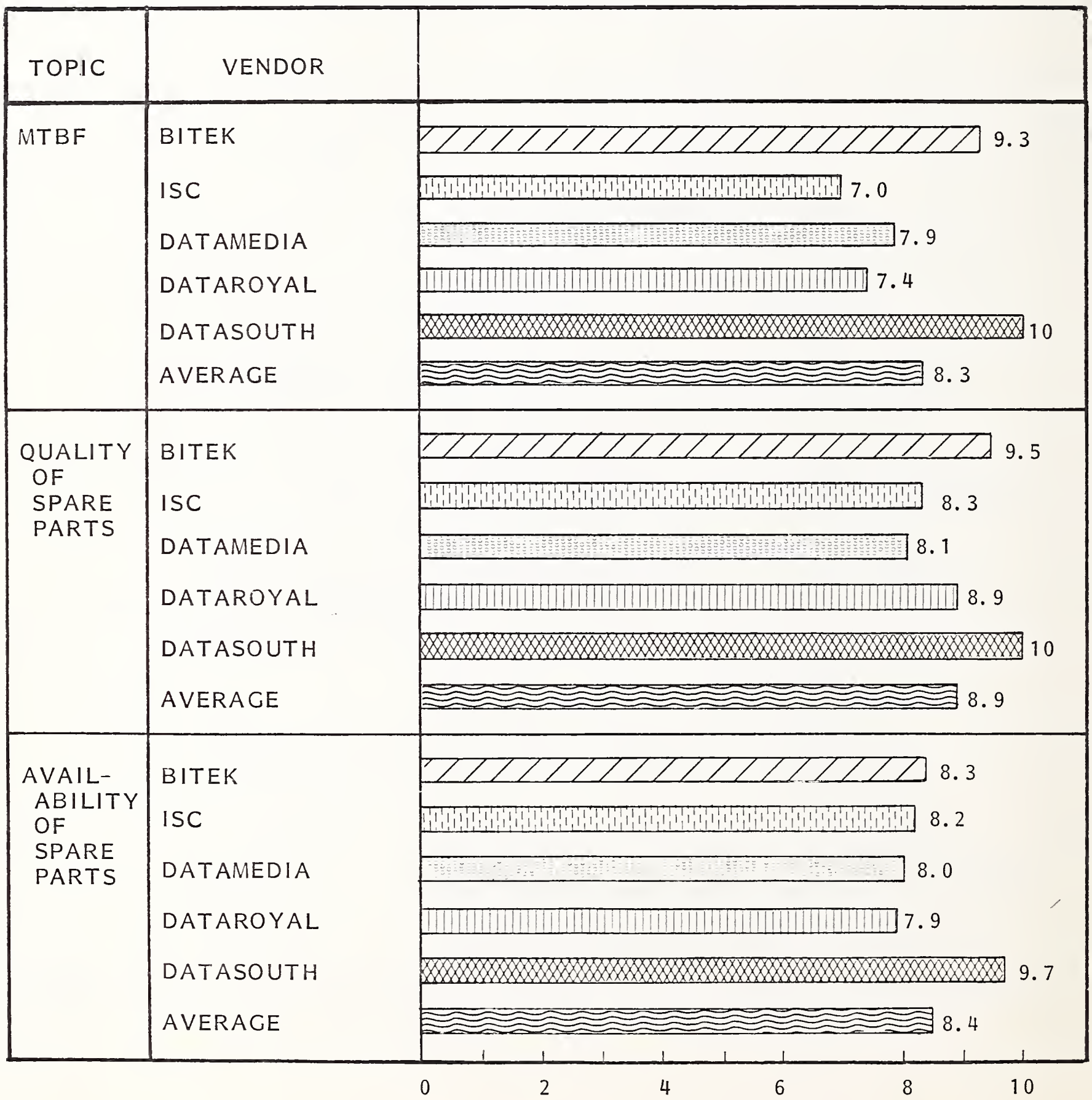
- Accessibility of technical assistance.
- Mean time to respond.
- Mean time to repair.
- Cost of repair.
- Documentation.
- Training of field engineers.

- As shown in Exhibit II-3, all vendors were acceptable in these categories.
  - Bitek, with very reliable equipment, scored highest in some categories.
  - Datasouth, which uses distributors for its maintenance at present, did not provide data on repair and response times.
  - In general, Intelligent Systems Corporation scored lower than average, but by a narrow margin. Also, users of Intelligent Systems' equipment were the most sophisticated in terms of EDP, and would tend to be the most critical.

- As a means of determining what opportunity exists for exploiting a user desire for improved maintenance, users were asked to rate "minimum" and "ideal" response and repair times.
  - Results are presented in Exhibit II-4.
  - There is an opportunity to offer improved service, particularly in repair time, as evidenced by the difference between "minimum" and "ideal" times.

EXHIBIT II-3

A COMPARISON BY TOPIC OF THE FIVE VENDORS EVALUATED






INPU

EXHIBIT II-3 (CONT.)

A COMPARISON BY TOPIC OF THE FIVE VENDORS EVALUATED

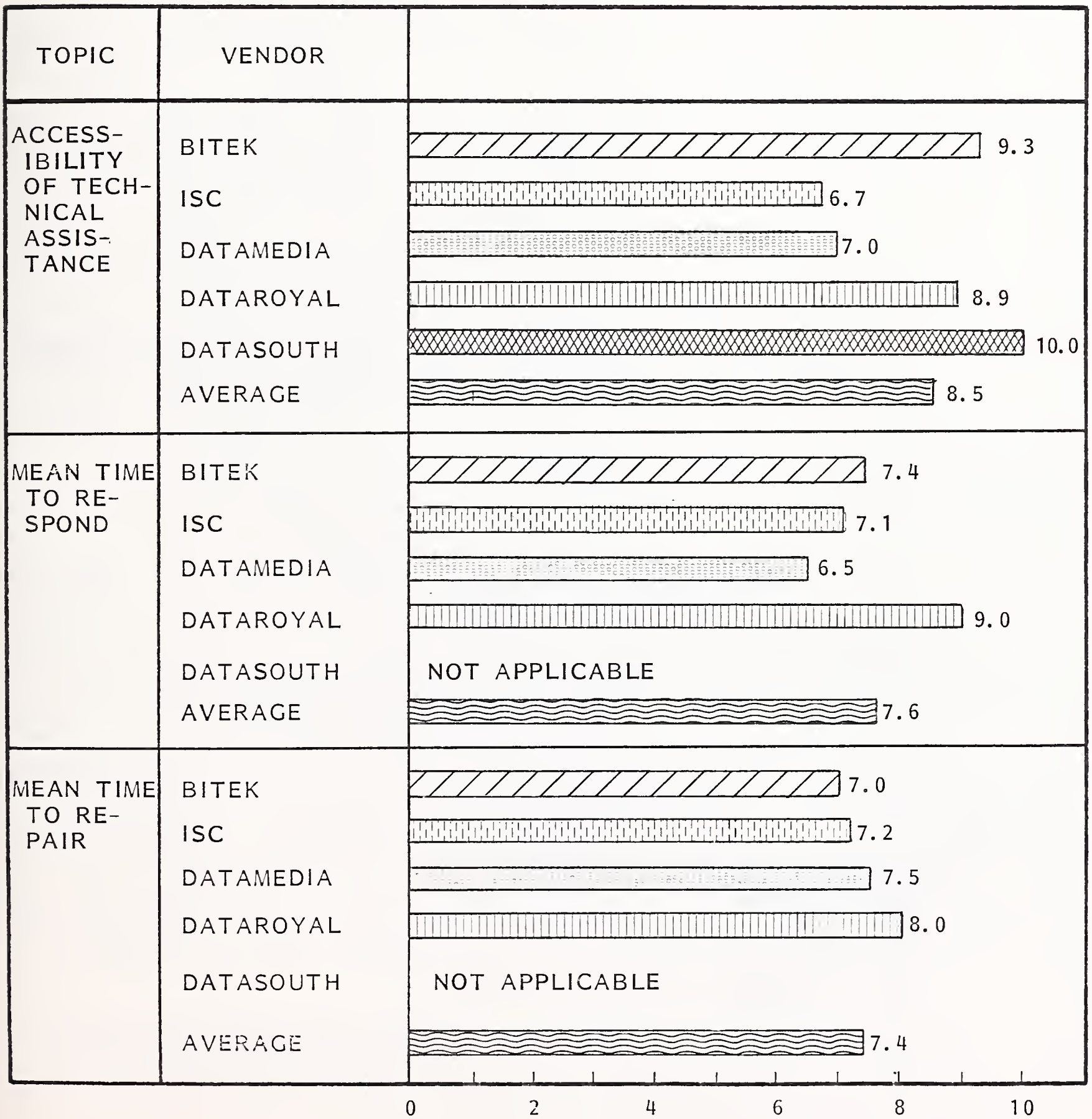
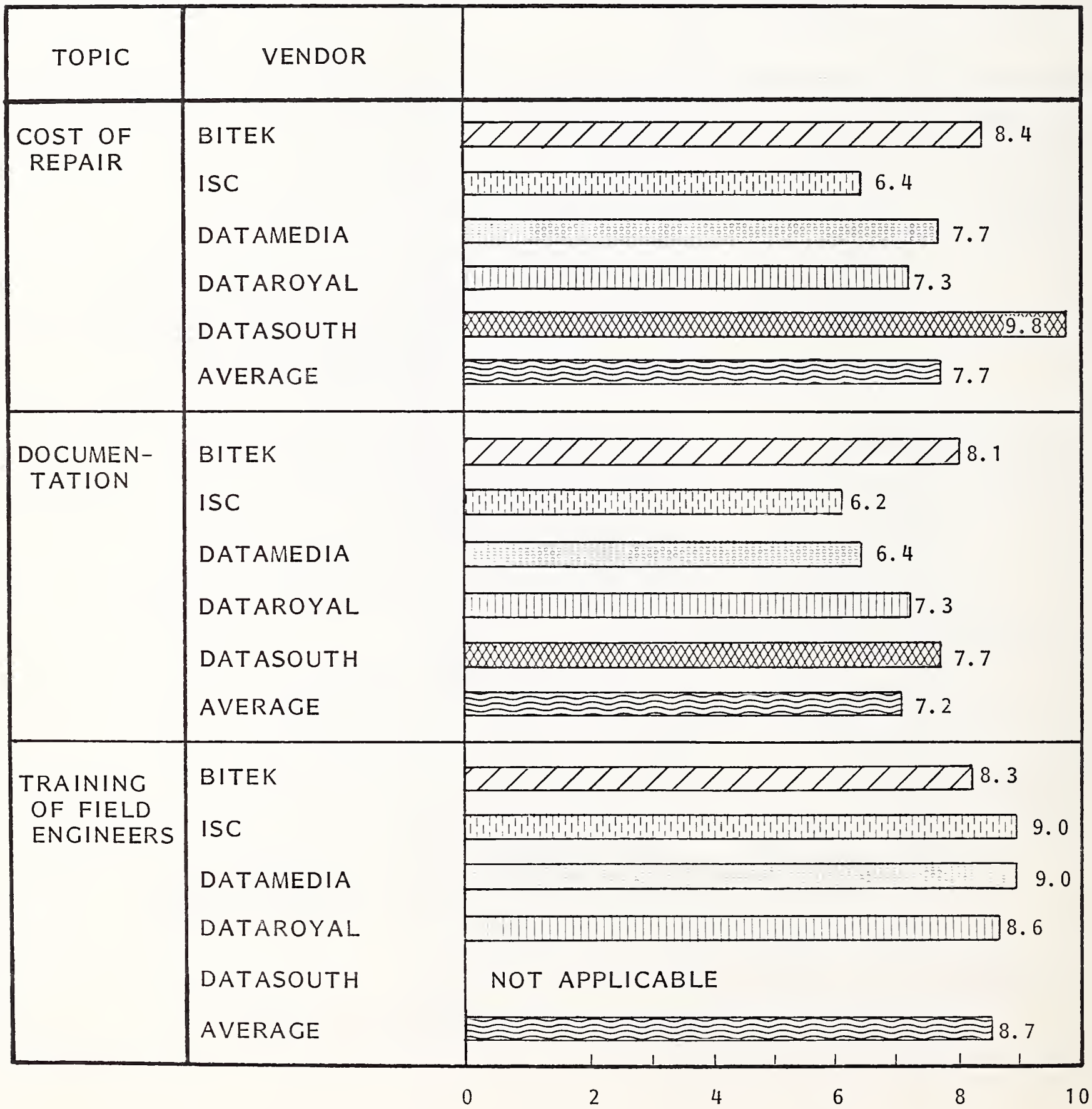


EXHIBIT II-3 (CONT.)

A COMPARISON BY TOPIC OF THE FIVE VENDORS EVALUATED

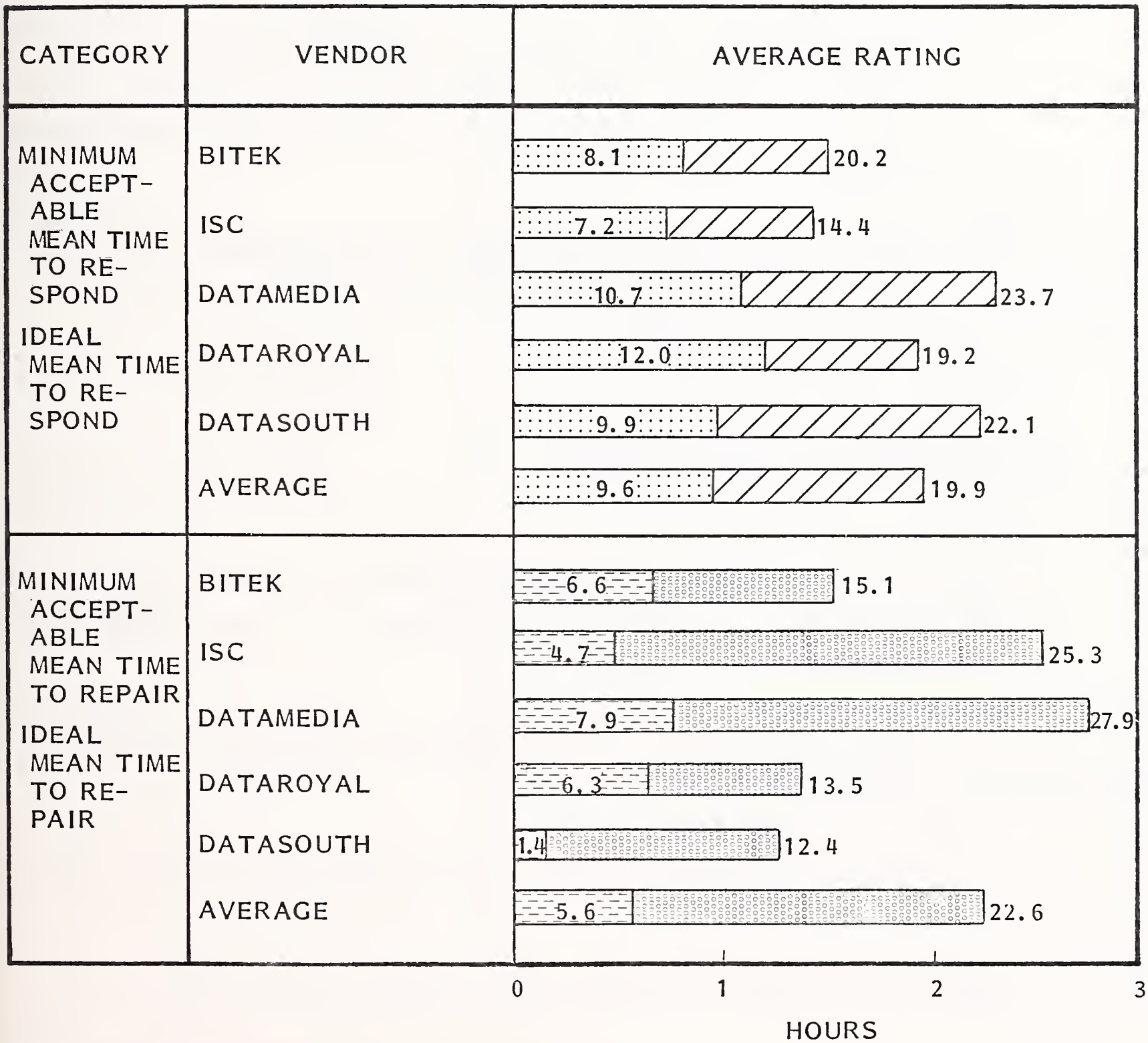





INPU

EXHIBIT II-4

A COMPARISON OF MINIMUM ACCEPTABLE AND IDEAL MEAN TIMES TO RESPOND AND REPAIR




IDEAL MEAN TIME TO RESPOND

MINIMUM ACCEPTABLE MEAN TIME TO RESPOND

IDEAL MEAN TIME TO REPAIR

MINIMUM ACCEPTABLE MEAN TIME TO REPAIR

RATING: 0 = VERY POOR, 5 = NEUTRAL, 10 = EXCELLENT

- One strategy element available to MSI is to involve users in the maintenance process.

  - In Exhibit II-5, the willingness of users to participate in the maintenance of equipment is compared by vendor.

  - Other than Bitek, users' willingness to participate is good. Bitek users tend to be the least sophisticated of the five user groups, which contributes to their hesitance to become involved in the maintenance process.

  - There is some resistance among users to depot maintenance. This same level of resistance has been found among other users contacted by INPUT on other projects.

## C. RECOMMENDATIONS BY VENDOR

- Each of the five vendors selected for user analysis has potential as a user of MSI's maintenance, but each offers a different set of opportunities and potential problems.

  - Some of the diversity of the marketplace is represented in the five vendors.

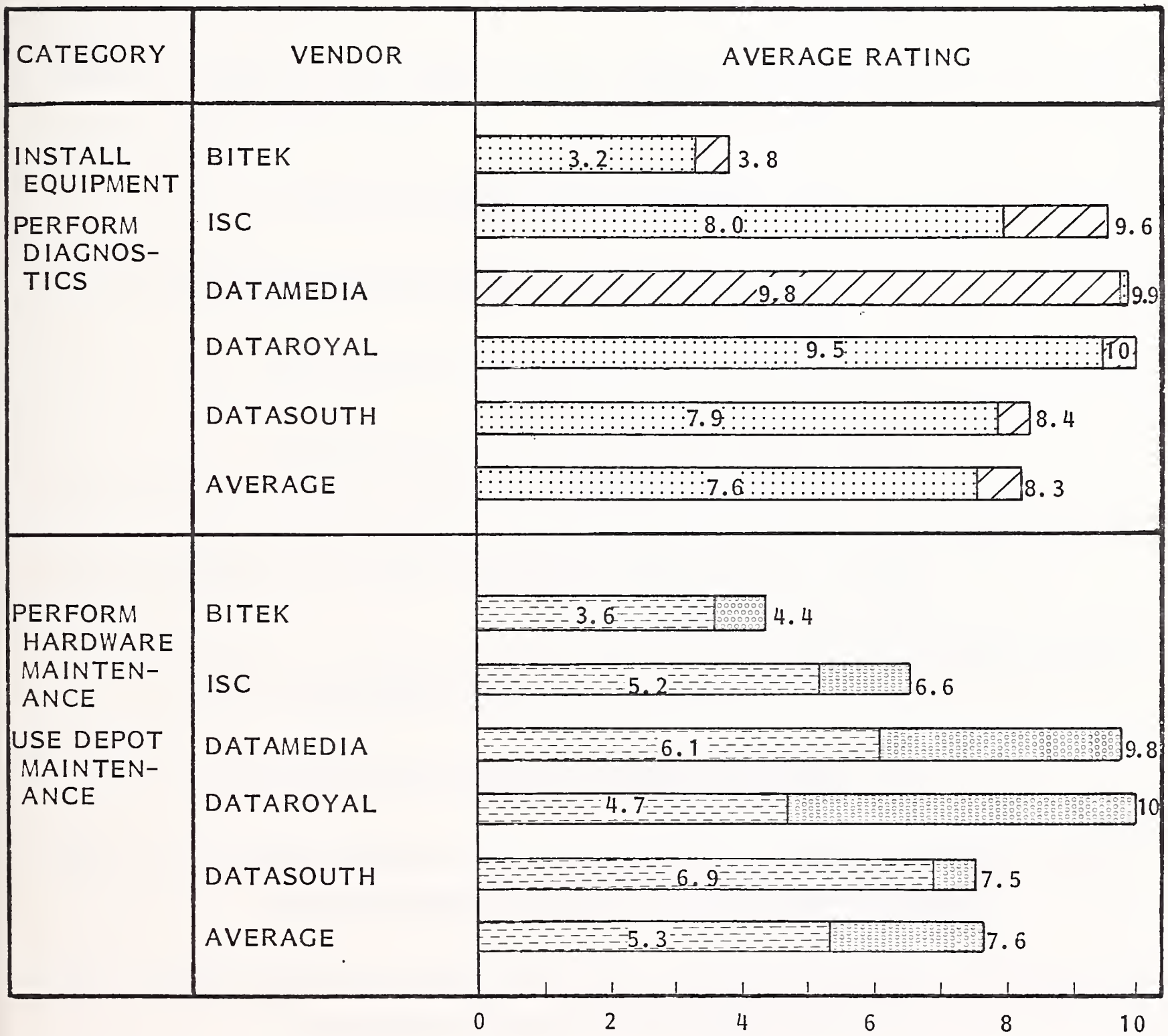
  - All five vendors are comparable in that they offer relatively small, simple systems.

- Bitek is unique in that it is the only vendor offering a communications system.

  - The potential third-party 1981 revenue is $625,000.

EXHIBIT II-5

COMPARISON OF USERS' WILLINGNESS TO PERFORM THEIR OWN MAINTENANCE




PERFORM DIAGNOSTICS

INSTALL EQUIPMENT

USE DEPOT MAINTENANCE

PERFORM HARDWARE MAINTENANCE

RATING: 0 = VERY POOR, 5 = NEUTRAL, 10 = EXCELLENT

- On the positive side, Bitek offers an immediate opportunity and is known to MSI management. Also, there is little self-maintenance of equipment by current users.

- On the negative side:

  . It is a relatively complex system in a new (communications equipment) environment.

  . Seven day, 24-hour maintenance is required.

  . The equipment is very reliable, meaning the learning curve may be long.

  . Few users are under contract.

  . The vendor wants to retain Southern California on a direct basis.

- INPUT recommends that MSI proceed with care in negotiations with Bitek and insist on:

  . Bitek's commitment to promote contract sales.

  . Inclusion of Southern California in MSI's coverage.

• Datamedia offers a terminal product that is growing rapidly and has good reliability. However, there are significant negative factors:

- The vendor wants to provide field service on the East and West coasts on a direct basis, rather than through a third party.

- The market is heavily in the education sector, which is price sensitive, with high levels of self-maintenance.

- Some users are negative to third-party.

- MSI's approach should be to drive a premium bargain in the geographic areas covered where Datamedia needs help; if Datamedia resists paying a premium, MSI Data should look for other alternatives.

- Intelligent Systems offers a good product with high potential. The other positive aspects are:

  - It wants third-party on a national basis.

  - The product is simple.

  - There is potential also for revenues from board repair.

  - The company will provide access to its support center.

- On the negative side, its users now do a lot of their own maintenance, and it is a potential 24-hour, seven-day requirement.

- On balance this is a very good opportunity and INPUT recommends that MSI pursue it aggressively.

- Dataroyal offers a good product with good growth potential.

  - The negative factors are primarily that the vendor wants to maintain account control and may not be a good long-term prospect.

  - INPUT recommends that this prospect be pursued, but that the long-term potential be critically investigated.

- Datasouth's product got excellent ratings from users. Also, it is very anxious to establish a third-party relationship on a long-term basis.

- Maintenance is currently being done by distributors.

- Interviews with distributors indicated many would be receptive to a third-party relationship.

- INPUT recommends that Datasouth be pursued aggressively even though it will require agreements both at Datasouth and with individual distributors. MSI may enhance the profitability of handling this vendor by approaching only those distributors who cover areas where MSI has excess field engineering capacity.

## D. OVERALL RECOMMENDATIONS

- MSI Data must avoid spreading its resources too thin and must build an image as a vendor, with national coverage, of maintenance of:

  - Small equipment.

  - Primarily terminal products.

- MSI should promote its use of advanced techniques to avoid straight price competition. An example is to promote the Electronic Field Service Reporting System as soon as it is available.

- The depots offer a profit opportunity and should be involved in most offerings.

- Pricing is a key consideration, and MSI must develop a long-term pricing strategy based on value delivered. Attempting to make a profit simply by selling people time is not a viable strategy in a time of rapidly rising people costs.

- In the long term, MSI should develop a relationship with vendors which includes participation in new product design.

  - This will leverage MSI's knowledge of the maintenance aspects of design.

  - It will also contribute to the stability of the relationship as the vendor depends increasingly on MSI Data.

- The promotion of third-party maintenance must be recognized as an ongoing activity if it is to succeed and grow.

  - An individual or a team must be designated with the prime responsibility to carry out negotiations.

  - A timetable for revenue and profit growth must be defined.

  - The search for vendors must be ongoing and can use the framework defined in this study.

- The third-party activity must be publicized to the field maintenance force, particularly in the context of its impact on job security and career growth.

- A marketing approach to users must be developed which addresses the resistance points found in this study:

  - Users perceive that some third-party vendors spread their people "too thin" for them to be competent in multiple types of hardware.

  - Users need reassurance that response and repair times will improve.

  - Users in the small equipment environment often felt a third-party vendor would increase maintenance costs - often without improving service.

000006

# III RESULTS OF THE VENDOR SURVEY

# III RESULTS OF THE VENDOR SURVEY

## A. THE SELECTION PROCESS

- It was recognized at the outset that vendor selection must be made both by type of company/business and type of product. The company/business parameters considered were:

  - Geographic coverage.
  - Size of investment.
  - Availability of current vendor field force.
  - Credit rating.
  - Growth potential.
  - Stability of company.
  - Age of product.
  - New product plans.
  - Single versus multiple product company.

- Competitive versus noncompetitive (with MSI) products.
- Hours of coverage required.
- Attitude toward third-party.
- Pricing.

- The product types considered were:
  - Mini/microcomputers.
  - Tape drives.
  - Disk drives.
  - Plotters.
  - Terminals.
  - Word processors.
  - Modems.
  - Memory.
  - Printers.
  - CATV.
  - Turnkey systems.
  - Software.
  - Communications equipment.

- After review of these guidelines with MSI, INPUT selected companies which had the most of the following desirable characteristics:

  - A new, start-up product, to avoid the need to maintain old equipment.
  - A single product.
  - Eight-to-five, five-day maintenance.
  - Noncompetitive with MSI.
  - Little or no software maintenance.
  - A potential for national coverage.
  - Maintenance that generates a minimum of $100,000 in revenues per year.
  - Good growth potential.

- The products determined to be most desirable, in approximate order, were:

  - Terminals.
  - Printers.
  - Disk drives and controllers.
  - Tape drives and controllers.
  - Communications equipment.

- Of over 2,000 potential vendors listed in reference documents in INPUT's library, 46 were selected, plus Datum, Caere and Bitek which were selected by MSI. The selection process is shown graphically in Exhibit III-1.

## B. OVERVIEW OF VENDORS INTERVIEWED

- Of the first 20 vendors contacted, ten were interested in third-party and were interviewed. One company, Bitek, was selected to be interviewed at a user level. The profile of this first series of interviews is presented in Exhibit III-2.

- A second set of 29 vendors were then contacted in order to locate a total of 20 vendors who were interested in third-party maintenance. Typical responses from companies not interested in third-party maintenance were:

  - Edit Systems, Inc. - has own FE services.
  - Danyl Corporation - depot repair or distributor repair only.
  - Centronics - on contract with Indeserv and Dow Jones.
  - Comtal Corporation - parent, 3M, does all maintenance.
  - Computer Transceiver Systems, Inc. - committed to Dow Jones Service and satisfied.
  - Datametrics - own maintenance force.
  - Data Printer Corporation - customer responsibility or depot repair.
  - Dataproducts - own FEs and TRW contract commitment.
  - Air Land Systems Corporation - OEMs and GE contract.

EXHIBIT III-1

OVERALL METHODOLOGY FOR THE MSI DATA STUDY

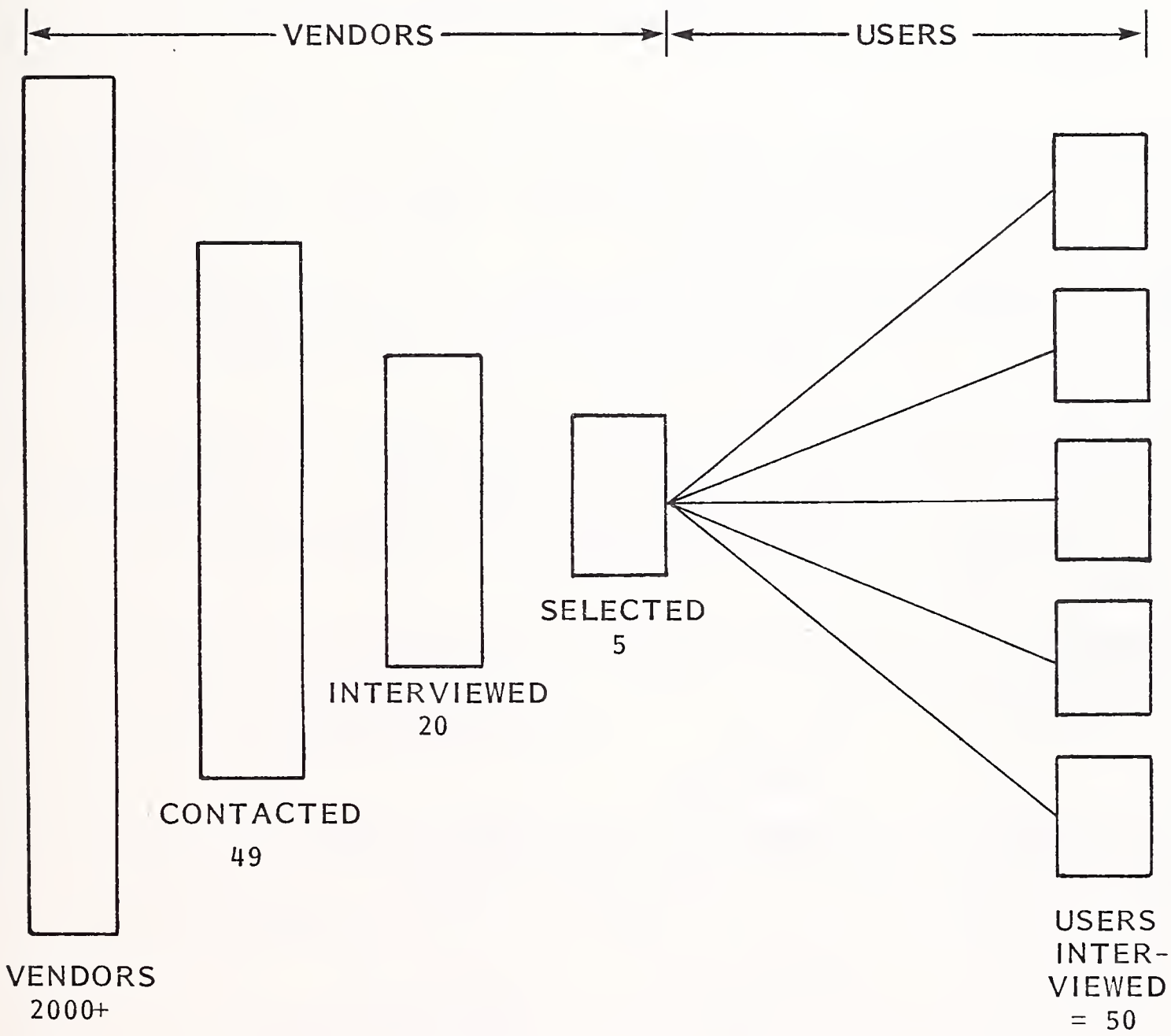


EXHIBIT III-2

PROFILE OF THE FIRST
TEN VENDORS INTERVIEWED

| NO. | COMPANY | PRODUCT(S) | REMARKS | ACTION |
|---|---|---|---|---|
| 1 | DATUM | TAPE AND DISK | FROM MSI | - |
| 2 | CAERE | DATA ENTRY | FROM MSI | - |
| 3 | BITEK | TELEPHONE MGT. | FROM MSI | SELECTED |
| 4 | INNOVATIVE DATA TECH. | TAPE SYSTEMS | SAN DIEGO | - |
| 5 | GENERAL TERMINAL | A/N TERMINAL | INTERNAL OPPOSITION | - |
| 6 | DATASOUTH | MATRIX PRINTERS | DISTRIBUTORS | - |
| 7 | BGL TECH. | MINICOMPUTER | PERKIN-ELMER REPL. | - |
| 8 | ARTOLONICS | W.P. SYSTEMS | SHELL CANADA | - |
| 9 | CHARLES RIVER DATA | WINCH AND FLOPPY | UNSURE OF MAINTENANCE REQUIREMENTS | - |
| 10 | NCSS | MEGAMINI | COMPLEX | - |

- Ann Arbor Terminals - factory service only.

- Cal Datacom - has national contract with Western Union.

- NBI - uses internal FE service force, dealers, less than 1% third-party; future shift to NBI FE force.

- Algorithmics - uses dealers, distributors.

- Wordplex - uses distributors.

- Interstate Electronics Corporation - own FE organization.

- SCI Systems, Inc. - sells only to OEMs who do own repairs or depot repairs only.

- The profile of the second ten vendors interviewed is presented in Exhibit III-3. Four vendors - Interface Systems, Intelligent Systems, Intertec and Datamedia - were selected by MSI for evaluation in the second phase (user phase).

- Because Interface Systems and Intertec declined to provide a profile of users to be interviewed, Datasouth and Dataroyal were substituted after consultation between INPUT and MSI Data.

- The results of the user interviews are presented in the next chapter. In the following section information about each of the twenty vendors interviewed is summarized.

  - MSI Data may want to contact some of these vendors for further discussions. Copies of the interviews with these 20 vendors have been supplied to MSI Data.

  - The profiles of vendors not selected is meaningful in providing guidelines in future searches for third-party partners.

EXHIBIT III-3

PROFILE OF THE SECOND TEN VENDORS INTERVIEWED

| NO. | COMPANY | PRODUCT(S) | REMARKS | ACTION |
|---|---|---|---|---|
| 11 | Q1 CORPORATION | OFFICE EQUIPMENT | TRIAL PERIOD | - |
| 12 | COMPUTER LINK | TAPE SYSTEMS | REGIONAL | - |
| 13 | COMPUTEK | TERMINALS, TEXT | REGIONAL | - |
| 14 | DELTA DATA | DISPLAY TERMINAL | REGIONAL | - |
| 15 | DATAROYAL | PRINTERS | DEPOT AND RCA | - |
| 16 | FINDEX | MICRO | USE SORBUS | - |
| 17 | INTERFACE SYSTEMS | CRT/PRINTERS | IBM COMPATIBLE | SELECTED |
| 18 | INTELLIGENT SYSTEMS | COLOR TERMINAL | PROCESS CONTROL | SELECTED |
| 19 | INTERTEC | TERMINALS AND MICROS | CANADIAN COVERAGE | SELECTED |
| 20 | DATAMEDIA | VIDEO DISPLAY | BANKS AND UNIVERSITIES | SELECTED |

- The pros and cons of the third-party potential of the five vendors selected were discussed in Chapter II (Executive Summary).

## C. PROFILES OF VENDORS INTERVIEWED

### 1. DATUM

| | | |
|---|---|---|
| • Products | - | magnetic tape and disk controllers and magnetic tape transports |
| • Company Revenue | - | $15 million in fiscal year 1979 |
| • Units Installed | - | over 10,000 |
| • Projected Units 1981 | - | 1,500 |
| • Average Price/Unit | - | $10,000 |
| • Geographic Distribution | - | New England, California, Southern United States, Europe, Canada |
| • Present Service | - | 50% vendor maintained, 50% OEM maintained |
| • Repair Philosophy | - | board level replacement |
| • Parts | - | prefers third-party to distributed parts owned by Datum |

- Datum is interested in contracting with a third party to provide maintenance of its equipment in the southern United States from New Mexico east to Florida. At present there is a substantial yet unspecified installed base of equipment in this area for which DATUM does not have sufficient coverage.

- Very few end users are presently on a service contract (approximately 25) for which it charges approximately $2,000 per year. Its T&M rates are $55 per hour and $40 per hour for time spent riding on planes.

- Datum would ideally prefer a fixed fee contract for services in the southern states. It is also considering contacting Sorbus, Pertec and CDC during the first few weeks of 1981. The driving force toward third-party is to increase geographic coverage and reduce its travel costs.

- The vendor states it has no good numbers for mean time between failures (MTBF) but indicates the number is very high. It identifies the warranty period as being the one which requires excessive amounts of maintenance activity. This would not be of concern to any third party since it would be paid on a T&M basis for work performed under warranty.

- Headquarters of Datum is in Anaheim, California.

2. CAERE

| | | |
|---|---|---|
| • Product | - | data entry products |
| • Company Revenue | - | declines to state |
| • Units Installed | - | declines to state |
| • Projected Units 1981 | - | 400 per month |
| • Average Price/Unit | - | $1,500-2,300 |

- Geographic Distribution - U.S. and Canada
- Present Service - depot only
- Repair Philosophy - board level
- Parts - distributes
- Caere is a product MSI is familiar with through MSI's connection with Chase.
- Caere states it is now placing more emphasis on end user sales and would be interested in third-party. The company states it would want some hard numbers on the performance standards of the third party before further investigation.
- It would not want the third party to be a manufacturer of possibly competitive equipment. As a result, INPUT does not recommend proceeding any further with this company.

3. BITEK

- Product - telephone management systems
- Company Revenue - under $5 million
- Units Installed - 500
- Projected 1981 Units - 225
- Average Price/Unit - active: $35,000-150,000
  passive: $15,000-35,000
- Geographic Distribution - Southern California, New York

- Present Service - vendor field engineering staff
- Repair Philosophy - board level
- Parts - negotiable
- Bitek is interested in third-party for its telephone management systems as it expands its marketing activities to include such organizations as hotels which require longer hours of coverage as well as being in areas which it cannot effectively cover.
- It states that any third party must have both data processing and telephone experience.
- Bitek estimates 60% of its installed base would be available for third-party maintenance (excluding telephone companies and the Los Angeles area).
- Potential revenue from service contracts, based on 6% per year and an installed base of 500 split 85% passive systems and 15% active systems, yields a 1981 revenue of $625,000.
- Vendor estimated MTBF of 8,000 hours for passive systems and 4,500 hours for active systems projects approximately 150 calls per year.
- At present, very few users are on contract but the vendor states it is beginning a campaign to bring the majority of users under contract.
- Bitek is headquarted in Long Beach, California.

4. INNOVATIVE DATA TECHNOLOGY

- Product - magnetic tape transport systems
- Company Revenue - $6 million

- Units Installed - 2,000 units - ½" drive
- Projected Units 1981 - 1,000 units - ½" drive
- Average Price/Unit - $7,000 end user
- Geographic Distribution - U.S.
- Present Service - 50% third-party (Indeserv and Serviss)
  50% OEM
- Repair Philosophy - board level with exception of motor replacement
- Parts - Initially provides contingency kits to distribute and then purchases replacements

- Innovative Data Technology (IDT) presently provides maintenance services through Indeserv and Serviss but is not contractually bound to either.

- IDT would only require maintenance on out-of-warranty equipment. It is not involved in selling maintenance contracts but refers the end user to either Indeserv or Serviss. It is concerned with the lack of uniformity of skills of available maintenance through existing third parties.

- IDT does not want a third party to have a competitive line of equipment.

- At present 3,000 units are installed, with an average price of $7,000 for end users. The vendor states that 2% of purchase price per month would be an acceptable figure for maintenance. Assuming 50% of the installed base would be available to the third-party vendor, including the projected 1,000 units to be placed in 1981, this translates into a projected 1981 revenue of $3.36 million if all users were on a service contract. A more realistic rate of 1% of purchase price per month would translate into a maximum revenue figure of

$1.38 million for 1981. The vendor states that very few customers are presently on a service contract.

- If the vendor stated MTBF is 6,000 operating hours, the 2,000 units maintained would be expected to require approximately 700 calls per year. Assuming a two-hour minimum at IDT, and T&M rates of $50 per hour, this would generate revenues of $70,000, plus mileage, parts and travel time at $15 per hour.

- The drastic differences in the projected revenue from maintenance contracts versus T&M, given the vendor stated MTBF, suggest a need to further investigate the reliability of the equipment through user interviews.

5. GENERAL TERMINAL CORPORATION

| | | |
|---|---|---|
| • Product | - | alphanumeric terminal |
| • Company Revenue | - | $17 million |
| • Units Installed | - | 50,000 |
| • Projected Units 1981 | - | 24,000 |
| • Average Price/Unit | - | $1,500 |
| • Geographic Distribution | - | worldwide |
| • Present Service | - | depot only |
| • Repair Philosophy | - | board replacement |
| • Parts | - | distributed vendor-owned party |

- General Terminal Corporation (GTC) is actively seeking third-party maintenance as a means to provide national coverage on an immediate basis to aid in marketing its products.

- The president and vice president of GTC are in support of this strategy, but the Director of Customer Service is adamantly opposed to the concept. At present, all maintenance is depot. The customer service director should be assumed to actively oppose any arrangement for third-party maintenance but upper management should also be expected to overrule his opposition.

- If 50% of the present installed base were to opt for service under a maintenance contract at 1% of purchase price per month, this should generate revenues of $4.5 million for 1981. Since there is no on-site maintenance at present, a more realistic estimate would be 10% of the projected 20,000 units to be placed in 1981 and $300,000 in revenue.

- The Director of Customer Service states that he does not wish the third-party organization to provide any maintenance on a T&M basis. This is, however, more than likely to be overruled by the desire of upper management to reap the marketing benefits of being able to provide national coverage for its products.

6. DATASOUTH

| | | |
|---|---|---|
| • Product | - | matrix printer - 180 CPS |
| • Company Revenue | - | under $5 million |
| • Units Installed | - | 500 (three months in production) |
| • Projected Units 1981 | - | 4,000 |
| • Projected Units 1983 | - | 8,000 |

- Average Price/Unit - $1,595
- Geographic Distribution - U.S. - 40 cities through 13 distributors
- Present Service - provided by distributors
- Repair Philosophy - board replacement
- Parts - prefers third-party purchase and resell, but flexible

- Datasouth is very interested in contracting with a third party to provide maintenance on its DS matrix printer.

- The printer has only been in production for three months and 500 units have been placed during that time.

- The vendor states that the distributors who sell the printer also provide the maintenance. If it were to contract with a third party to provide maintenance, the vendor estimates 50% of the installed base would be available for third party and the remaining 50% would be retained by distributors. If this is true, it implies approximately 2,250 units in 1981. The vendor recommends a $27 per month price for maintenance which translates into a potential revenue of $729,000 for 1981 if all users were on a service contract. At present, very few users are on service contracts.

- The vendor states that the projected MTBF for the printer is calculated to be 1,500 operating hours. Thus, the 2,250 units would be expected to require 3,120 service calls per year based on eight operating hours per day. Assuming a T&M rate of $55 per hour with a two-hour minimum, this would result in revenues of $343,000 for 1981.

- Datasouth is quite flexible concerning purchase of parts since it is aware that its present installed base is not large enough to attract any of the larger third-party organizations.

- To fully evaluate Datasouth would require interviewing a sample of its distributors to determine their willingness to allow a third party to provide maintenance of the DS 180 printers it sells.

7. BGL TECHNOLOGY CORPORATION

- Product - proposed Perkin Elmer replacement
- Company Revenue - under $5 million
- Units Installed - none
- Projected Units 1981 - 100
- Geographic Distribution - N/A
- Present service - depot
- Repair philosophy - board
- Parts - purchases and resells

- BGL Technology wishes to find a third-party vendor to provide third-party maintenance for a proposed replacement for Perkin Elmer Model 70 mini-computers.

- The vendor is very vague about any details concerning equipment reliability or marketing plans.

- It is INPUT's opinion that the vendor has not fully developed either his product plans or maintenance requirements and thus should not be considered further at this time.

8. ARTOLONICS (SUBSIDIARY OF SHELL OF CANADA)

- Product - EDP and word processing system
- Company Revenue - start-up
- Units Installed - 25 (Canadian)
- Projected Units 1981 - 250
- Average Price/Unit - $10,000
- Geographic Distribution - concentration on West Coast
- Present Service - Indeserv
- Repair Philosophy - board level
- Parts - purchases and resells
- Artolonics is a start-up company which is interested in contracting for third-party maintenance until it has sufficient saturation in an area to take over maintenance using its own field force.
- It is INPUT's belief that it would not be in the best interests of MSI Data to further investigate this vendor's products.

9. CHARLES RIVER DATA

- Product - Winchester and floppy disk drives

- Company Revenue - under $5 million
- Units Installed - 1,000 systems
- Projected Units 1981 - 850
- Average Price/Unit - $8,000
- Geographic Distribution - 50% East Coast - 50% U.S.
- Present Service - 100% depot
- Repair Philosophy - board level
- Parts - purchases and resells
- Charles River Data is interested in third-party maintenance but does not wish to enter into a contractual relationship. Rather, it would prefer third-party to work exclusively on a T&M basis. Its stated MTBF of 8,000 hours coupled with its installed base of 1,000 units does not predict sufficient revenue for further consideration as a potential candidate.

10. NATIONAL CSS (SUBSIDIARY OF DUN & BRADSTREET)

- Product - large minicomputer (3200 Series)
- Company Revenue - $3-5 million per year on this product; total NCSS - $75 million
- Units Installed - approximately 30
- Projected Units 1981 - approximately 10
- Average Price/Unit - $250,000

- Geographic Distribution - large cities in U.S.

- Present Service - own field force

- Repair Philosophy - NCSS will maintain software everywhere. It is looking for outside hardware maintenance

- Parts - not defined

- The 3200 Series was announced in 1978 with much publicity. The product idea was based on implementing NCSS advanced software on a modern, large minicomputer. The product has had slow growth, due in large measure to the low cost of the IBM 4300 Series which was announced in 1979, and which took away the price advantage originally envisioned for the 3200.

- NCSS recently disbanded the computer equipment division and merged it into the Information Systems and Services Division. The 3200 is still being marketed with two new installations recently completed.

- The prime current reason for NCSS's interest in third-party is to expand its market coverage, as it is now restricted to large cities where it already has a field force. It would consider turning over the total hardware maintenance task to the right third-party vendor.

- Because NCSS markets timesharing services based on much of the same software as is implemented on the 3200, it has a national capability to do software maintenance by the personnel who work on the software in the timesharing area of the business. Therefore, although the system is the most complex of those considered in this study, a third-party vendor need only be concerned with the hardware maintenance, and not the software maintenance.

- The minicomputer is manufactured by Two Pi Corporation in Santa Clara, California (a subsidiary of Phillips). National CSS is headquartered in Wilton, Connecticut.

- The complexity of the product and small installed base make this an unlikely prospect.

II. Q1 CORPORATION

| | | |
|---|---|---|
| • Product | - | automated office equipment |
| • Company Revenue | - | $10 million |
| • Units Installed | - | 2,000 |
| • Projected Units 1981 | - | 1,000 |
| • Average Price/Unit | - | range: $6,000-17,000 |
| • Geographic Distribution | - | national - concentrated on eastern seaboard |
| • Present Service | - | third-party (part-time subcontracted) distributors |
| • Repair Philosophy | - | board level |
| • Parts | - | prefers purchase and resell |

- Q1 Corporation is always interested in listening to third-party vendor offerings.

- Currently Q1 customer maintenance is available from part-time subcontracted personnel located in 24 different territories across the country. Geographic

divisions are based on government installation sites which comprise the majority of Q1 users.

- Q1 feels a potential third-party vendor should have a proven track record in field service and should permit its clients a trial contract period.

- End users include NASA and a number of credit unions, typically operating in an eight-to-five environment.

- Q1 estimates that by the end of 1983, 9,500 units will be installed. Estimated annual maintenance fees average 12% of purchase price.

- The headquarters of Q1 Corporation is in New York City.

12. COMPUTER LINK CORPORATION

| | | |
|---|---|---|
| • Product | - | tape cleaning system, tape evaluation system, remittance processor |
| • Company Revenue | - | $5-10 million |
| • Units Installed | - | not available |
| • Projected Units 1981 | - | 1,000 |
| • Average Price/Unit | - | tape cleaning system - $3,000<br>tape evaluation system - $14,000<br>remittance processor - $27,000 |
| • Geographic Distribution | - | national |
| • Present Service | - | 90% vendor maintained, 10% Sorbus, Indeserv |

- Repair Philosophy - board level
- Parts - prefers third-party to distribute parts
- Computer Link Corporation is a rapidly growing company whose maintenance requirements are, for the most part, being met by its own field service organization. It has indicated that its workforce is weak in the midwestern and southeastern parts of the country and it would seriously consider third-party alternatives for these areas.
- Average monthly maintenance fees run $170. Failure rates run from the worst case at two weeks to less than once a year.
- Computer Link prefers to continue direct contact with customers and interface with maintenance vendors.
- The headquarters of Computer Link Corporation is in Burlington, Massachusetts.

13. COMPUTEK

- Product - intelligent terminals, text processing systems
- Company Revenue - $5 million
- Units Installed - 1,000
- Projected Units 1981 - not available
- Average Price/Unit - range: $3,000-35,000
- Geographic Distribution - Boston to Washington, DC, Texas to Florida

- Present Service - vendor/parent field engineering staff, third-party

- Repair Philosophy - board level

- Parts - negotiable

- Computek's own maintenance force is restricted to Boston-Washington, DC, and Texas to Florida regions. Users outside these areas have been "forced" to use the field service force of Computek's parent, General Automation. Computek stated General Automation did not have the expertise in this type of equipment.

- Computek indicated an interest in discussing acquisitions of its FE force by a third party, citing cost effectiveness as the primary motive. There is a concern for job security on the part of its current FE staff.

- Computek estimates the average monthly maintenance fee to be $250 annually, plus 12% of purchase price. The MTBF is estimated at 3,000 hours.

- The headquarters of Computek is in Burlington, Massachusetts.

14. DELTA DATA SYSTEMS

- Product - video display terminals

- Company Revenue - $18 million

- Units Installed - 25,000 (4,000 of which are in maintenance by Delta)

- Projected Units 1981 - 4,000

- Average Price/Unit - $2,400-7,500

- Geographic Distribution - national
- Present Service - 50% vendor maintained, 40-45% distributors/end users, 5-10% Sorbus, Western Union
- Repair Philosophy - board level
- Parts - distributes
- Delta Data Systems is interested in discussing third-party maintenance in the Southeast (Texas) and Washington state. The company feels that additional shift coverage is an option that would be very appealing. As a small company, the need for wide geographic coverage has increased from year to year. A vendor that could supplement its own FE force on a permanent, long-term basis is of interest.
- The headquarters of Delta Data Systems is in Cornwell Heights, Pennsylvania.

15. DATAROYAL

- Product - printers
- Company Revenue - $5-10 million
- Units Installed - 10,000
- Projected Units 1981 - 2,000
- Average Price/Unit - $1,000-3,000
- Geographic Distribution - national
- Present Service - vendor depot, user, distributor, RCA

- Repair Philosophy - board level
- Parts - distributes
- Dataroyal has repair depots in Los Angeles, in Ohio and on the East Coast. If the customers prefer alternative service they can maintain themselves or contact RCA. On rare occasions on-site repair is done by Dataroyal ($55 per hour, two-hour minimum).
- The company is anticipating the need for a more structured service approach because of its growth and extended geographic distribution. Dataroyal wants to maintain control of customer service and must be involved in agreements between customers and any maintenance organization.
- The MTBF is estimated at 1,500 hours. Monthly maintenance fees range from $35 to $55.
- The headquarters of Dataroyal is in Nashua, New Hampshire.

16. FINDEX

- Product - microcomputer
- Company Revenue - $5 million plus
- Units Installed - 400
- Projected Units 1981 - 1,200
- Average Price/Unit - with disk drive memory - $6,980
  with bubble memory - $9,980
- Geographic Distribution - national

- Present Service - factory repair, distributors, Sorbus
- Repair Philosophy - board level
- Parts - prefers purchase and resell
- Findex is a rapidly growing company (doubling each year) in the microcomputer industry. Currently, it has a backlog of 1,800 orders and is shipping 150 units per month.
- Distributors handle most of the service of the equipment, arrange for maintenance on their own, or ship to the factory for repair. Direct end user sales are restricted to Southern California.
- Findex acknowledges there will always be a need for third-party maintenance of its product because of increasing demand by users for on-site repair (currently fulfilled by Sorbus) and a need for widespread geographic coverage as the company continues to grow.
- The headquarters of Findex is in Torrance, California.

17. INTERFACE SYSTEMS, INC.

- Product - IBM plug compatible CRT printers
- Company Revenue - $2 million
- Units Installed - 500
- Projected Units 1981 - 300
- Average Price/Unit - $4,000-10,000
- Geographic Distribution - national

- Present Service - Sorbus, Pertec
- Repair Philosophy - board level
- Parts - prefers purchase and resell
- Interface Systems, Inc. is very interested in speaking to another third-party maintenance vendor. It feels the level of competency could be better and its present vendors do not provide a consistent level of service across the country. Since it is financially prohibitive for the company to do the maintenance itself, third-party is very much in its future plans.
- The company contracts service with end users and subcontracts to maintenance vendors. Interface Systems wants to continue this policy.
- This company has doubled in sales each year for the past three years. It is in the process of announcing two new products.
- Maintenance fees average $48-100 per month. Ninety-eight percent of users are on a standard service contract. Printers are supplied by Centronics, Printronics and NEC.

18. INTELLIGENT SYSTEMS

- Product - color terminal
- Company Revenue - $10-20 million
- Units Installed - 10,000
- Projected Units 1981 - 3,000
- Average Price/Unit - $1,900

- Geographic Distribution - 67% U.S. - 33% foreign
- Present Service - all depot
- Repair Philosophy - board level
- Parts - purchases
- Intelligent Systems is looking to decentralize the maintenance function from its present factory return structure.
- It foresees a third party performing on-site swapping of boards and subsequent component level repair at the third party's depot. It would prefer to pay for third-party repair of bad boards rather than the on-site swap of boards.
- At present, Intelligent Systems markets primarily to the manufacturing community, with its equipment being used in the process control area. It is now looking to moving into the business area.
- The headquarters of Intelligent Systems is in Norcross, Georgia.

19. INTERTEC

- Product - terminals and micro-based systems
- Company Revenues - $10-20 million
- Units Installed - 6,000 terminals
- Projected Units 1981 - 1,000
- Average Price/Unit - $3,000
- Geographic Distribution - U.S. and Canada

- Present Service - U.S.; Carterphone Canada; none
- Repair Philosoophy - board level
- Parts - distributes
- Intertec has recently contracted with Carterphone to provide third-party maintenance for its U.S. customers. It is interested in considering contracting with a third party to provide on-site maintenance for its rapidly expanding Canadian market.
- It is reluctant to discuss the number of units involved in this sector, citing its privately held status and the competitive nature of the information.

20. DATAMEDIA CORPORATION

- Product - video display terminals
- Company Revenue - $8 million plus
- Units Installed - new product - only three to four months old
- Projected Units 1981 - none
- Average Price/Unit - $1,400-2,100
- Geographic Distribution - national
- Present Service - vendor maintained, distributors
- Repair Philosophy - board level
- Parts - negotiable

- Datamedia Corporation changed owners in late 1979 and has recently begun marketing a new product. Though no figures are available on the number of units sold, the company is experiencing a growth rate in the range of 100% to 150% per year. Its video display terminals will be used primarily by eight-to-five environments, mainly banks and universities.

- Field service is provided by Datamedia only on the East and West coasts. Depot repair and distributor service are currently provided in the rest of the country. The company realizes if it is to continue growing and provide adequate response/repair times, it must explore third-party maintenance.

- Preliminary statistics indicate equipment failure rates of 2%. Annual maintenance fees range from $250 to $400.

- The headquarters of Datamedia Corporation is in Pennsauken, New Jersey.

# IV RESULTS OF THE USER SURVEY

# IV RESULTS OF THE USER SURVEY

## A. STRUCTURE OF THE USER SURVEY

- The objective of the user survey was to determine the level of performance of a vendor's equipment in the field and to quantify the attitude of users toward that equipment.

- Since the users' names were supplied to INPUT by the vendor (it was impractical for INPUT to locate users on a random basis since the installed base of the equipment was small) some bias may exist in the user samples. For this reason, the user sample is defined in each case.

- The target was to interview 10 users from each of the five vendors selected by MSI Data. This target was achieved with four vendors; for the fifth vendor only nine users agreed to be interviewed.

- Parameters covered in the interviews included:

  - User satisfaction with the equipment.

  - Overall user satisfaction with maintenance.

  - User satisfaction with specific aspects of maintenance such as MTBF, spare parts, repair costs, documentation, training level of available

FEs, accessibility of technical assistance and mean times to respond and repair.

- Respondents interviewed usually were managers of data processing, systems analysts, process and systems engineers, VPs, service managers or their equivalent.

- To determine the potential environment MSI would encounter as a third-party maintenance vendor, users were also asked about their attitude toward third-party, the levels of maintenance they ideally would like to have, and their willingness to perform self-maintenance.

- In the following section the results of the surveys for each of the five user samples are presented and organized by vendor category.

## B. RESULTS OF THE USER SURVEY

### 1. BITEK USERS

- The prime product for which Bitek is seeking third-party maintenance is a new telephone management system. The company currently supplies its own field maintenance in Southern California and wants coverage in the rest of the U.S.

- The Bitek users surveyed included:

  - Four manufacturers.

  - One publisher.

  - Two law offices.

  - One hospital.

- One university.

- One county government.

- Eight of ten users interviewed were located in Southern California. These were satisfied users. Two users in Northern California were less satisfied, reflecting the lower level of service in locations distant from the servicing point.

- The ratings given to Bitek by its users are tabulated in Exhibit IV-1.

  - The lower end of the range of ratings shown on the exhibit reflects the opinion of the Northern California users.

  - The high reliability of the equipment is reflected in the high MTBF rating.

- Using the same rating (0 = very poor and 10 = excellent) Bitek users rated the equipment at 8.6 and the maintenance at 7.7.

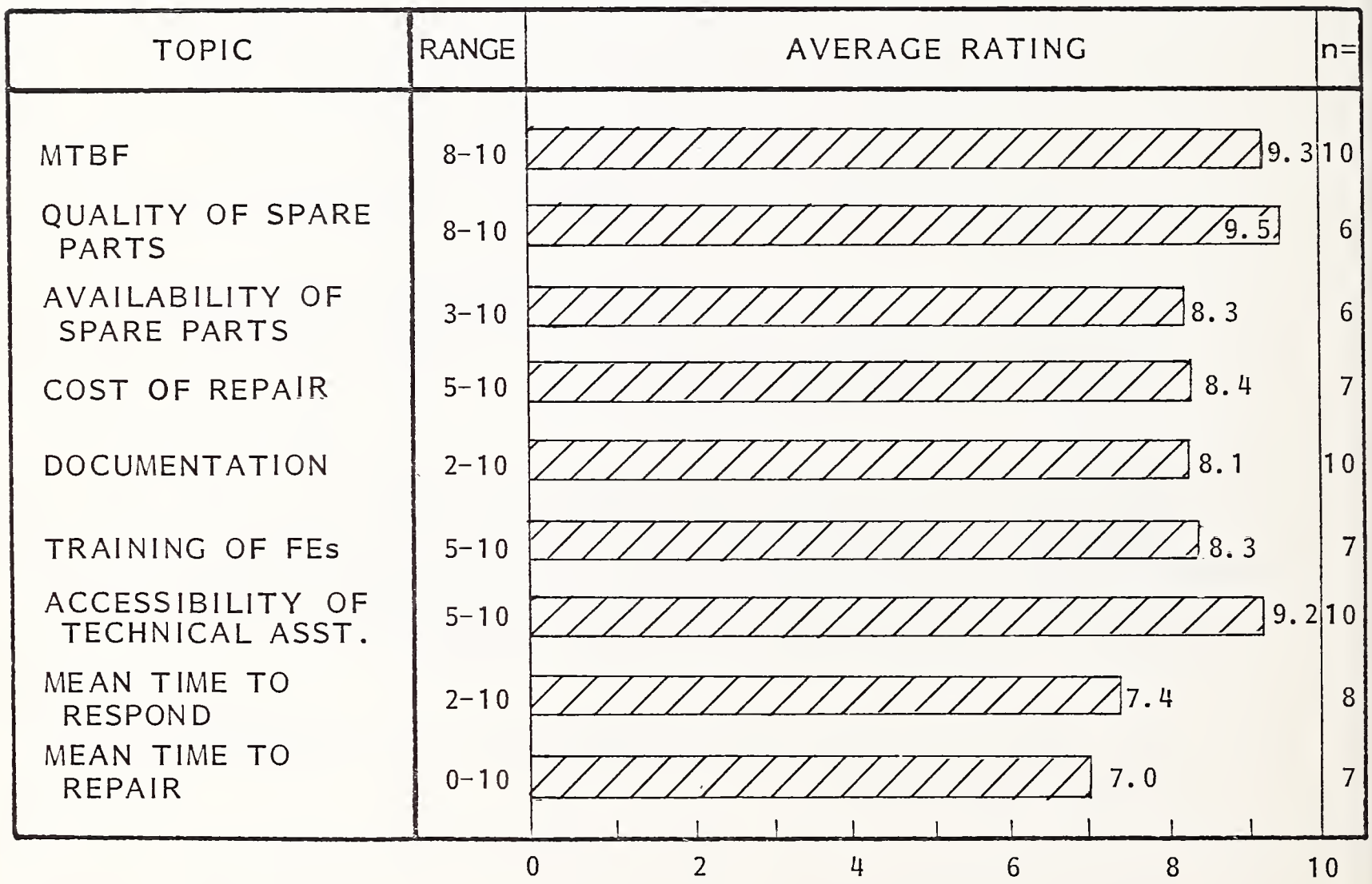
- With regard to receptivity to third-party maintenance, four users responded favorably, two negatively, and four were neutral. A comment was, "I look favorably toward third-party maintenance because of an almost complete absence of factory support" ( a Northern California user).

- With regard to rates, users generally expected the third-party vendor to continue current rates.

- With regard to performance, users rated minimum mean time to respond at 20 hours and to repair at 15 hours. The "ideal" levels were eight hours and seven hours respectively.

EXHIBIT IV-1

RATING OF MAINTENANCE AND EQUIPMENT
BY USERS OF BITEK




n = NUMBER OF RESPONSES

RATING: 0 = VERY POOR, 5 = NEUTRAL, 10 = EXCELLENT

- With regard to willingness to perform self-maintenance, Bitek users were not receptive compared to users of other equipment surveyed. On a scale where 0 = unwilling, 5 = neutral and 10 = willing, Bitek users responded as follows:

  - Install equipment — rating of 3.8
  - Perform diagnostics — rating of 3.2
  - Perform hardware maintenance — rating of 4.4
  - Use depot maintenance — rating of 3.6

- Related to the user's unwillingness to do maintenance is the Bitek users' generally low level of EDP expertise.

2. INTELLIGENT SYSTEMS USERS

- The Intelligent Systems product for which it is seeking third-party maintenance is a color terminal primarily used in process control applications. ISC is beginning to move its product into the general business area.

- Current maintenance is primarily done by the user and involves on-site swapping of boards. It would like a third party to perform the board repair as well as do some on-site maintenance. Payment for on-site maintenance would be by the user, and payment for the board repair would be by the vendor upon completion of the repair.

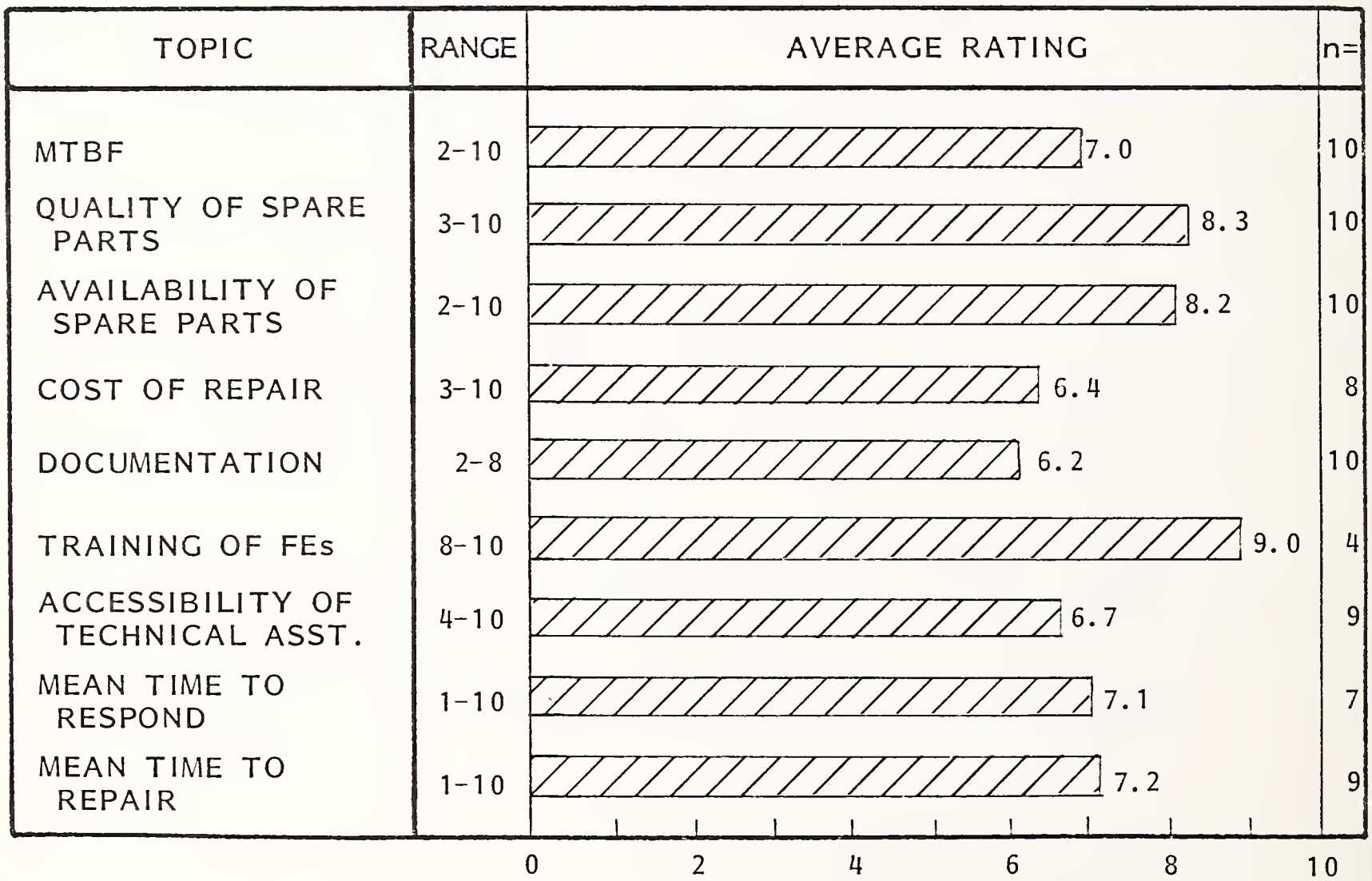
- On a scale of 0 indicating very poor and 10 indicating excellent, users rated ISC equipment at 7.0 and maintenance at 7.4.

- The ratings shown in Exhibit IV-2 were obtained from the following group of users:

  - Two petroleum companies.

EXHIBIT IV-2

RATING OF MAINTENANCE AND EQUIPMENT
BY USERS OF INTELLIGENT SYSTEMS




n = NUMBER OF RESPONSES

RATING: 0 = VERY POOR, 5 = NEUTRAL, 10 = EXCELLENT



INP

- One chemical company.
- One paper company.
- Two utilities.
- One railroad.
- Three systems houses.

- While ISC users generally gave a moderately positive rating, the low number of responses to the "training of FEs" topic is significant in that it reflects the high amount of self-maintenance done by these users. On a scale of 0 = unwilling to 10 = very willing, ISC users responded as follows with regard to willingness to perform self-maintenance:

  - Install equipment — rating of 9.6
  - Perform diagnostics — rating of 8.0
  - Perform hardware maintenance — rating of 6.6
  - Use depot maintenance — rating of 5.2

- ISC users interviewed were generally favorable to having a third party provide maintenance.

  - Five responded positively.
  - Four responded negatively.
  - One was neutral.

- A typical positive comment was, "Very positive toward third-party maintenance. Service now is really not too good. Depot maintenance now is too slow and expensive."

- Expectations regarding rates to be charged by a third party were mixed. Some expected higher charges. One respondent recognized the potential economies versus vendor supplied maintenance when the vendor is small - "Depends on the volume of equipment installed. For a small company (like ISC) it would be more cost effective to use third-party."

- With regard to service levels, ISC users wanted a minimum of 14 hours average to respond, and 25 hours to repair. The "ideal" levels were seven hours and five hours respectively.

- Respondents who were positive toward third-party typically wanted multiple systems maintained, not just ISC equipment.

3. DATAMEDIA USERS

- The product of this vendor is video display terminals. Users currently do much of their own maintenance.

- All the names supplied by the vendor to be interviewed were in the education field.

  - Eight were at the college or university level.

  - One was at the local school district level.

  - Typical titles were DP manager, manager of academic services and facilities manager.

- Overall, the equipment rated well at an average of 8.4, with 0 = very poor and 10 = excellent. Maintenance rated 7.7.

- Other INPUT research revealed that the education sector is very willing to do self-maintenance. This was reflected in Datamedia users who responded to questions of self-maintenance as follows, with 0 = unwilling and 10 = willing:

  - Install equipment — rating of 9.8
  - Perform diagnostics — rating of 9.9
  - Perform hardware maintenance — rating of 9.8
  - Use depot maintenance — rating of 6.1

- The attitude of Datamedia users to the overall maintenance issue is profiled in Exhibit IV-3. The attitude is generally positive. The low level of response to the "training of FEs" topic is reflective of the high amount of self-maintenance - the users have little exposure to FEs.

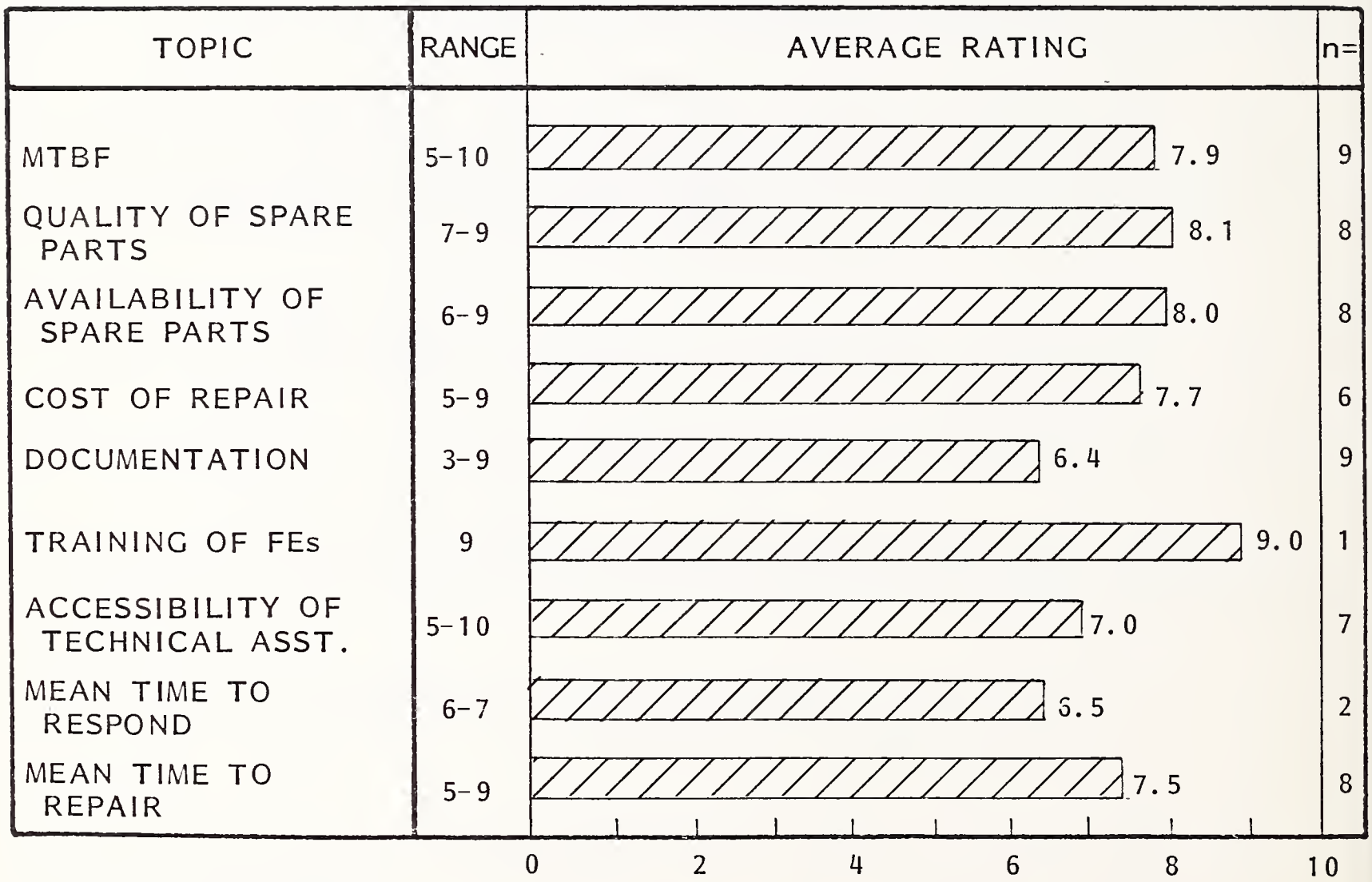
- The attitude of Datamedia users was generally negative toward third-party.

  - Three users responded positively.
  - Five responded negatively with comments like "poor response" and "too expensive."
  - The positive respondents tended to be smaller and, therefore, had smaller staffs.

- The negative attitude toward third-party carried over into the users' expectations of maintenance rates. A comment was, "It is too expensive to hire outsiders to do something we are capable of doing ourselves." This attitude is again more prevalent in the education sector.

EXHIBIT IV-3

RATING OF MAINTENANCE AND EQUIPMENT
BY USERS OF DATAMEDIA




n = NUMBER OF RESPONSES

RATING: 0 = VERY POOR, 5 = NEUTRAL, 10 = EXCELLENT



INP

- Datamedia users had similar expectations to other users about mean time to respond and mean time to repair. The average for "minimum" was 24 hours for each, and for "ideal," it was 11 hours and 8 hours respectively.

4. DATAROYAL USERS

- The product is a series of general-purpose, microprocesor-based matrix printers. Dataroyal has depots in Los Angeles, in Ohio and on the East Coast. As an alternative to depots, its customers can use RCA. Dataroyal is hesitant to go totally third-party because it wants to maintain contact with the end user.

- Dataroyal users interviewed included:

  - Two computer stores.

  - Six OEMs.

  - One chemical company.

  - One ski area.

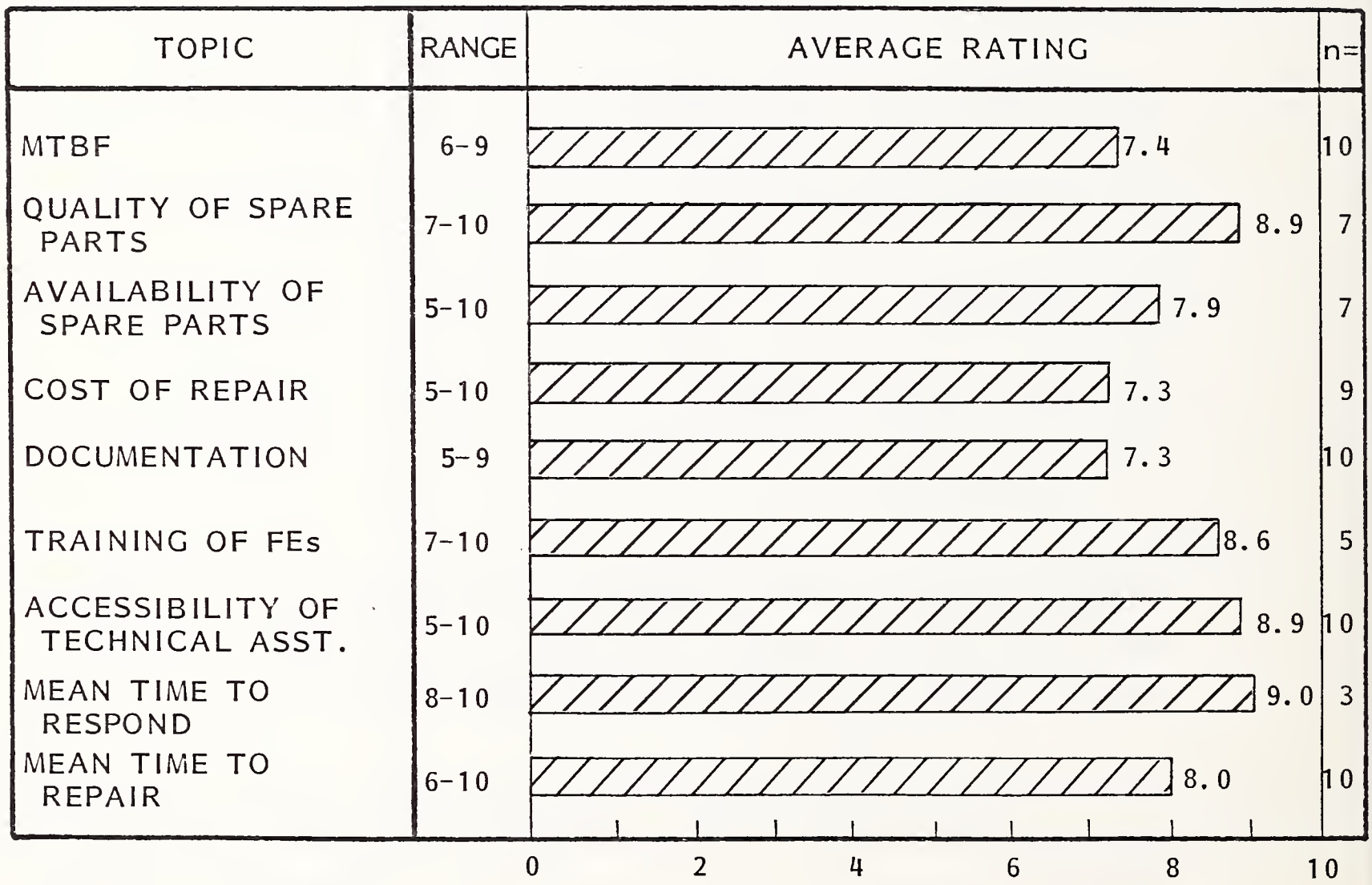
- Overall, Dataroyal rated the equipment and maintenance in the same range of most other offerings evaluated in this study. On a scale of 0 = poor and 10 = excellent, equipment was rated at 7.7 and maintenance at 7.9.

- The user ratings of the nine measurements used in this study are presented in Exhibit IV-4. No measurement was rated below a 7, and only one measurement reached 9. Compared to other profiles, this reflected a moderately pleased group of users.

- The attitude of Dataroyal users toward third-party maintenance was generally negative.

EXHIBIT IV-4

RATING OF MAINTENANCE AND EQUIPMENT
BY USERS OF DATAROYAL




n = NUMBER OF RESPONSES

RATING: 0 = VERY POOR, 5 = NEUTRAL, 10 = EXCELLENT



INF

- Seven users were openly negative with comments like, "I wouldn't like to have third-party maintenance," and "I would rather do my own maintenance in-house."

- With regard to maintenance rates for third-party, the majority thought the rates would remain constant. One comment was, "I would expect rates that reflected the complexity of the equipment. The simpler the equipment, the lower the rate should be."

- Dataroyal users expected a shorter repair time than some other groups of users contacted in this study. With regard to minimum mean time to respond and repair, they wanted an average of 19 hours and 13 hours. With regard to "ideal" they wanted 12 hours and six hours respectively.

- With regard to performing their own maintenance, Dataroyal users were very positive in all aspects other than depot maintenance.

  - Install equipment — rating of 10
  - Perform diagnostics — rating of 9.5
  - Perform hardware maintenance — rating of 10
  - Use depot maintenance — rating of 4.7

- Dataroyal users' negative attitude toward third-party and positive attitude toward self-maintenance were undoubtedly affected by the large number of OEMs supplied by Dataroyal to be interviewed.

5. DATASOUTH USERS

- The Datasouth product is also a microprocessor-controlled matrix printer. Maintenance currently is provided by distributors.

- Datasouth is willing to turn over maintenance totally to a third party but wants its distributors to agree on an individual basis.

- Datasouth estimates that 50% of its base is available for third-party.

- All the users interviewed were distributors of Datasouth or combination OEM distributors. They were located in Arizona (2), Florida, Illinois, California (2), Maryland, Michigan, Washington and New Jersey.

- Overall, Datasouth's equipment and maintenance were rated very high by users. With a scale based on 0 = very poor and 10 = excellent, equipment was rated 9.6 and maintenance 9.8.

- The results of user ratings according to the nine categories used in the survey are shown in Exhibit IV-5.

  - Again, Datasouth scores high.

  - Because distributors now perform the on-site repair, the categories of "training of FEs" and "mean time to respond and repair" do not apply.

- The distributors are open to the alternative of turning the maintenance function over to a third party.

  - Eight responded positively.

  - One responded negatively, and one had no opinion.

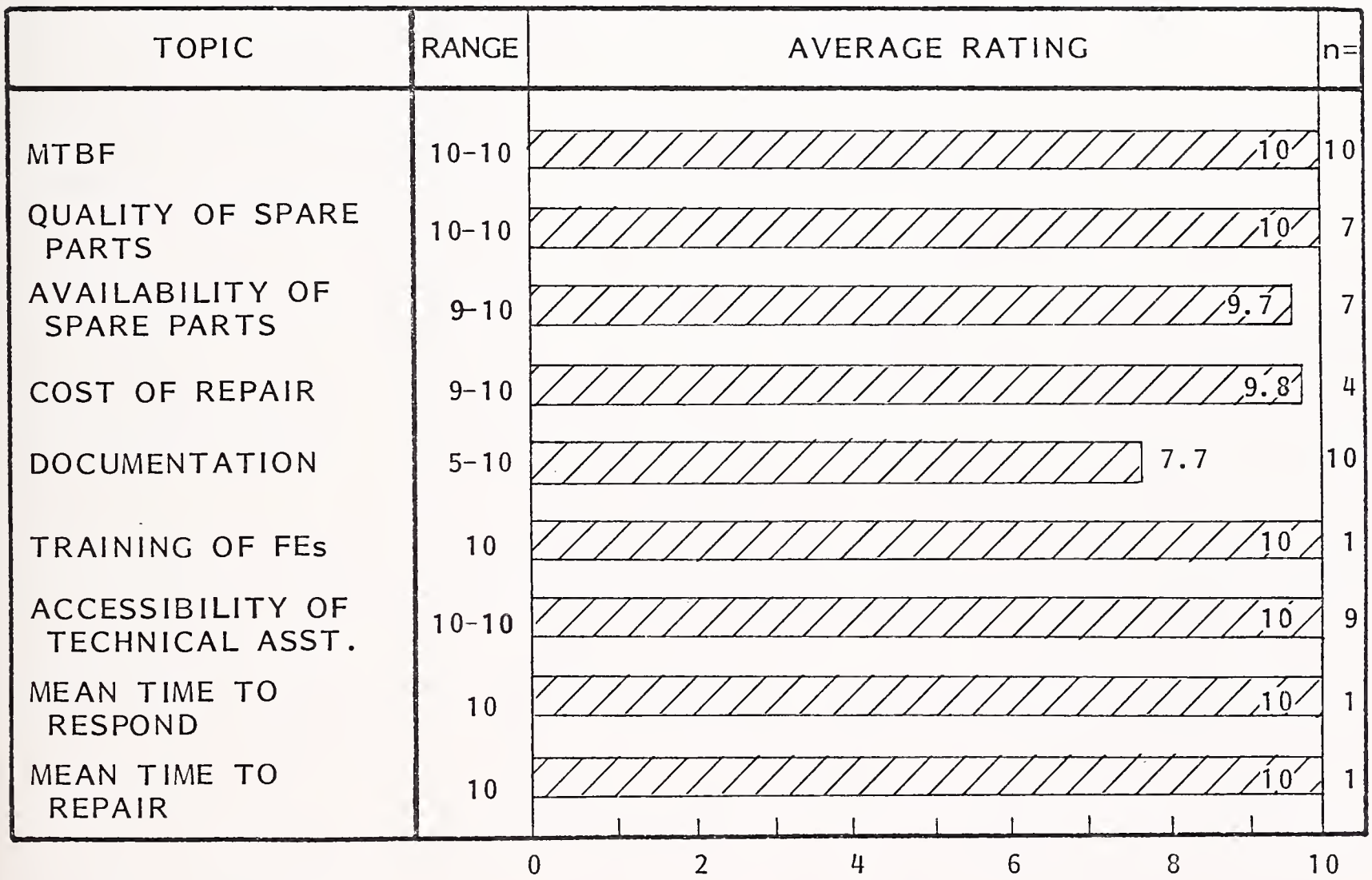
- With regard to maintenance rates, 90% expected rates to continue at present levels.



INPU

EXHIBIT IV-5

RATING OF MAINTENANCE AND EQUIPMENT
BY USERS OF DATASOUTH




n = NUMBER OF RESPONSES

RATING: 0 = VERY POOR, 5 = NEUTRAL, 10 = EXCELLENT

- Users would like significant improvements over the "minimum" levels of mean time to respond and mean time to repair. Minimum levels are 22 hours and 12 hours respectively; "ideal," according to the users, would be 10 hours and 1.4 hours respectively.

- With regard to performing self-maintenance, users would continue to be willing to do portions of the maintenance, with a relatively high willingness to use depot service. The ratings were, with 0 = unwilling and 10 = willing:

  - Install equipment — rating of 8.4
  - Perform diagnostics — rating of 7.9
  - Perform hardware maintenance — rating of 7.5
  - Use depot maintenance — rating of 6.9

# V THIRD-PARTY MARKETS

# V THIRD-PARTY MARKETS

## A. THE OVERALL MARKET - KEYS TO PROFIT

- To function profitably in the third-party maintenance market, MSI must:
  - Select market segments carefully.
  - Understand the structure and constraints in the market.
  - Have an awareness of competition.
- This section of the report is included to provide an overview of the market in the context of profitable functioning.
- The total field services market in the United States in 1981 is estimated by INPUT to be $7.3 billion.
  - The third-party market is 10% of the total, or $700 million.
  - Both the total market and the third-party market are growing at 15% per year.
- Forces which are feeding the growth of third-party maintenance are:

- Continued shipment of new products.

- Startup of new companies which cannot afford their own field forces.

- Mixed systems which can benefit from a single maintenance vendor.

- Distributed processing which makes it more difficult for a vendor to offer only localized service and also meet the needs of users.

- Forces restraining the growth of third-party maintenance include:

  - More reliable equipment and lower maintenance charges - the IBM 4300 Series is a prime example.

  - Reduced labor content in the maintenance of some new products through the use of remote diagnostics, depot maintenance and end user self-maintenance.

  - A tendency for some companies to build their own field force as they grow and feel they can afford it.

- A prime key to profit is to select the market segment to approach with care. INPUT has categorized the segments as follows:

  - Class One Equipment. This includes small business systems, dumb terminals, accounting machines, POS and peripherals.

    . This is the segment in which MSI and several of the vendors surveyed in this study are currently active.

    . The third-party maintenance potential in this segment is estimated at over $500 million per year if aggressively marketed.

- Profits are relatively difficult to obtain unless revenues per FE are near the high end of the $20,000-50,000 range typical for this segment.

- On the plus side, service is relatively easy with little software and board swapping being the major mode of maintenance.

- Class Two Equipment. This includes word processing, office of the future products, intelligent terminals and minicomputers.

  - The opportunity in this area is enhanced by the number of new companies entering it who cannot afford their own maintenance forces.

  - The potential for third-party maintenance today approaches $1 billion per year in the U.S.

  - Organizations with the required software and technical expertise are showing good profits, which are reflected in an average revenue per FE in the $45,000 range, with some companies exceeding $60,000 per FE.

  - For MSI to participate aggressively in this segment would require investment in training, but it is a logical long-term direction from the standpoint of profit potential.

  - None of the vendors selected in this study requires the software involvement to be considered in this category at this time, but they may grow into this category as their systems become more complex.

- Class Three Equipment. This includes large mainframes and related peripherals.

- The profit potential and complexity of service in this segment are both high.

- Revenue per FE ranges from $40,000 to $90,000.

- This is a prime market for Sorbus and Comma.

- For MSI, this would require extensive training, new tools and new methods. It is not a viable near- or medium-term alternative.

- Class Four Equipment. This includes communications systems, networks and PBX.

  - The potential for third-party here is very large - in the order of $2 billion per year.

  - The characteristic of this segment is that installation, rather than ongoing maintenance, dominates.

  - The personnel capabilities required vary widely due to the need for a few highly skilled and many lower skilled personnel.

  - This yields widely varied revenues and profits, with revenues per FE ranging from $30,000 to over $100,000.

  - Some union activity exists.

  - Of the vendors considered in this study, Bitek, fits in the low end of this category.

  - As a medium-term opportunity for MSI Data it warrants some consideration because of long-term potential. However, the short-term risk is much higher than for category one.

## B. LEADING VENDORS IN THIRD-PARTY MAINTENANCE

- Leading vendors in EDP equipment are shown in Exhibit V-1.
  - INPUT estimates that 30 additional companies or divisions of corporations are doing some third-party maintenance.
  - INPUT is aware of several other companies considering entering the market because of its profit potential.
- Leading companies active in the maintenance of communications equipment include:
  - Burnup and Sims in Plantation, Florida.
  - Henkels and McCoy in Blue Bell, Pennsylvania.
  - RCA Service Company in New Jersey (RCA is being used by one of the vendors selected in this study).
- Overall, while competition exists, there is certainly room for MSI, particularly in categories one and two.

## C. KEYS TO PROFIT

- A basic key to profit is in intelligent pricing.
  - Competitive levels vary widely and higher prices are achieved by vendors who package and market creatively.
  - Current price ranges by equipment type are shown in Exhibit V-2.

EXHIBIT V-1

LEADING THIRD-PARTY VENDORS
IN EDP EQUIPMENT

| VENDOR | CHARACTERISTICS |
|---|---|
| SORBUS | LARGE, MANY PRODUCTS, SPREAD THIN, SALES OVER $100 MILLION |
| TRW | BASED ON SINGER PERSONNEL. WORK ON DESIGN. SALES OVER $100 MILLION |
| CDC | COMMA ACQUISITION IN 1974. MAINFRAMES AND PERIPHERALS. APPROXIMATELY $100 MILLION |
| INDESERV | INDEPENDENT LOCAL ORGANIZATIONS. SALES APPROACHING $100 MILLION. RADIO SHACK A NEW CLIENT. |
| WESTERN UNION | PRIMARILY TERMINALS. $15 MILLION IN SALES |
| RAYTHEON | SOLD TO TRW AFTER IBM 4300 ANNOUNCEMENT |

EXHIBIT V-2

MAINTENANCE PRICE RANGE
BY EQUIPMENT TYPE

| TYPE OF EQUIPMENT/SOFTWARE | RANGE OF ANNUAL MAINTENANCE AS A PERCENT OF PURCHASE PRICE* |
|---|---|
| LARGE MAINFRAMES | 2-6%** |
| MEDIUM MAINFRAMES | 2-7% |
| SMALL BUSINESS COMPUTERS AND MINICOMPUTERS | 6-15% |
| PERIPHERALS | 2-12%*** |
| TERMINALS | 5-19%**** |

*RANGE IS FOR EQUIPMENT LISTED IN CHAPTER III

**AMDAHL IS AT 6%, OTHER VENDORS 2-3%

***IBM 3800 LASER PRINTER IS THE LOWEST AT 2.4%

****IBM 3101 IS THE LOWEST AT 5%

- More specific pricing examples are given in Exhibits V-3 through V-5.

- The method of delivery of maintenance has an impact on profitability. Exhibit V-6 is an estimate of profitability on terminal maintenance comparing pure on-site maintenance with depot maintenance (on the IBM 3101 terminal).

- Of course the cost control side of the equation also impacts profit. This includes:

  - Inventory control.

  - Training and retention.

  - Standards and controls.

- The ultimate key is to run the total services actively, including the third-party activity, with the objective that it is a business and must be run as a business. This means that all functions, including sales, marketing, planning and accounting must play a role in the conception and execution of the business plan.

EXHIBIT V-3

MAINTENANCE PRICING OF SELECTED VENDORS OF SMALL BUSINESS COMPUTERS AND MINICOMPUTERS

| VENDOR | MODEL NUMBER | PRODUCT DESCRIPTION | YEAR INTRODUCED | PURCHASE PRICE | MONTHLY MAINTENANCE CHARGE | ANNUAL MAINTENANCE AS PERCENT OF PURCHASE PRICE |
|---|---|---|---|---|---|---|
| DATA GENERAL | CS-50 | GENERAL BUSINESS | 1980 | $24,000 | $200 | 10% |
| DATAPOINT | 4520 | GENERAL PROCESSOR | - | 24,000 | 224 | 11 |
| DIGITAL EQUIPMENT | 11/34 | GENERAL BUSINESS | 1978 | 33,000 | 213 | 8 |
| | VT78 | SMALL | 1978 | 12,600 | 68 | 6 |
| | 8A | SMALLER | 1978 | 11,500 | 129 | 13 |
| FOUR PHASE | 430 | - | - | 25,000 | 140 | 7 |
| | IV/40 | - | - | 66,700 | 321 | 6 |
| HEWLETT-PACKARD | 100 | SCIENTIFIC/ ENGINEERING | - | 23,500 | 161 | 8 |

EXHIBIT V-4

MAINTENANCE PRICING OF SELECTED VENDORS OF PERIPHERALS

| VENDOR | MODEL NUMBER | PRODUCT DESCRIPTION | YEAR INTRODUCED | PURCHASE PRICE | MONTHLY MAINTENANCE CHARGE | ANNUAL MAINTENANCE AS PERCENT OF PURCHASE PRICE |
|---|---|---|---|---|---|---|
| BURROUGHS | 9484-25 | DUAL DISK | - | $32,960 | $ 100 | 3.6% |
| | 9247-15 | 1500/6M PRINTER | - | 44,000 | 400 | 11.0 |
| CDC | 819-11 | DISK | - | 53,500 | 229 | 5.1 |
| | 679-8 | TAPE | - | 33,600 | 150 | 5.3 |
| | 580-120 | 1200/PM PRINTER | - | 57,065 | 390 | 8.2 |
| HONEYWELL | MSV 0501 | DISK | 1980 | 49,650 | 197 | 4.7 |
| | MTV 0610 | TAPE | - | 21,000 | 105 | 6.0 |
| | 1600 | 1600 PRINTER | - | 64,940 | 538 | 9.9 |
| IBM | 3370 | 4300 DISK | 1979 | 38,690 | 126 | 3.9 |
| | 3350 | 370 DISK | 1975 | 41,600 | 179 | 5.1 |
| | 2314 | 360 DISK | 1966 | 219,850 | 1,085 | 5.9 |
| | 8809 | 4300 TAPE | 1979 | 11,500 | 55 | 5.7 |
| | 3410 | 370 TAPE | - | 7,935 | 81 | 12.3 |
| | 2415 | 360 TAPE | - | 36,310 | 259 | 8.5 |

EXHIBIT V-4 (CONT.)

MAINTENANCE PRICING OF SELECTED VENDORS OF PERIPHERALS

| VENDOR | MODEL NUMBER | PRODUCT DESCRIPTION | YEAR INTRODUCED | PURCHASE PRICE | MONTHLY MAINTENANCE CHARGE | ANNUAL MAINTENANCE AS PERCENT OF PURCHASE PRICE |
|---|---|---|---|---|---|---|
| IBM | 3800 | LASER PRINTER | - | $341,750 | $710 | 2% |
| | 3262 | 4300 PRINTER | - | 15,430 | 157 | 12 |
| | 1403 | 360/370 PRINTER | - | 40,040 | 450 | 13 |
| UNIVAC | 8470 | DISK | - | 38,400 | 120 | 4 |
| | 862 | NEW TAPE | - | 22,032 | 170 | 9 |
| | 770-4 | LINE PRINTER | - | 86,686 | 478 | 7 |

EXHIBIT V-5

MAINTENANCE PRICING OF SELECTED VENDORS OF TERMINALS

| VENDOR | MODEL NUMBER | PRODUCT DESCRIPTION | YEAR INTRODUCED | PURCHASE PRICE | MONTHLY MAINTENANCE CHARGE | ANNUAL MAINTENANCE AS PERCENT OF PURCHASE PRICE |
|---|---|---|---|---|---|---|
| BURROUGHS | 7D838 | CRT | - | $2,951 | 23 | 9% |
| CDC | 714-40 | CRT | - | 5,361 | 50 | 11 |
| HONEYWELL | VIR 7100 | CRT | - | 1,500 | 23 | 18 |
| IBM | 3101-10 | CRT | 1979 | 1,295 | 6 | 5 |
| | 3278-1 | CRT | 1978 | 2,205 | 13 | 7 |
| | 3279 | 4-COLOR CRT | 1978 | 3,805 | 25 | 7 |
| UNIVAC | VTS-20 | CRT | 1980 | 3,200 | 25 | 9 |
| | 3536 | LARGE CRT | 1975 | 4,252 | 51 | 14 |
| | 3536 | SMALL CRT | 1970 | 3,175 | 51 | 19 |

EXHIBIT V-6

DEPOT MAINTENANCE EXAMPLE: IBM 3101
VERSUS IBM 3278 MODEL 1

| ITEM | IBM 3101 MODEL 10 | OLDER TERMINAL IBM 3278 MOD 1 |
|---|---|---|
| ANNUAL MAINTENANCE | $70 | $156 |
| PERCENT OF PURCHASE PRICE | 5% | 7% |
| COSTS:* | | |
| TRAVEL | $ 0 | $100 |
| LABOR | $50 | $100 |
| PARTS | $10 | $30 |
| TOTAL PROFIT | $10 | $(74) |

ASSUMES TRAVEL AND LABOR AT $300/DAY

*COSTS ARE BASED ON INPUT ESTIMATES ASSUMING ONE FAILURE REQUIRING EITHER DEPOT REPAIR (3101) OR ON-SITE REPAIR (3278 MODEL 1) PER YEAR.

# APPENDIX: QUESTIONNAIRES

CATALOG NO. YMSI

# USER QUESTIONNAIRE

1. Please describe the number and types of _____ equipment installed in your organization.
vendor name

| MFG. | MODEL | NUMBER |
|---|---|---|
| | | |
| | | |
| | | |

2. How would you rate the overall quality of:

a) the equipment (excluding maintenance) ____

b) maintenance ____

0 = very poor, 5 = neutral, 10 = excellent

3. For the above equipment, what has been your experience according to the following performance criteria.

0 - 10 scale, 0 = totally unacceptable, 5 = neutral, 10 = excellent

| | RATING |
|---|---|
| a) MTBF | ____ |
| b) Quality of spare parts | ____ |
| c) Availability of spare parts | ____ |
| d) Cost of repair | ____ |
| e) Documentation | ____ |
| f) Training of field engineers | ____ |
| g) Accessibility of technical assistance | ____ |
| h) Mean time to respond | ____ |
| i) Mean time to repair | ____ |



INPUT

4. Describe your attitude towards having a third party providing the maintenance for your equipment.

_____

_____

_____

_____

5. Would you anticipate a change in maintenance rates if a third party were to provide the maintenance? Explain.

_____

_____

_____

6. What are the minimum acceptable and ideal levels of the following maintenance characteristics.

| | Minimum | Ideal |
|---|---|---|
| Mean time to respond | _____ | _____ |
| Mean time to repair | _____ | _____ |

7. How willing would you be to perform the following maintenance procedures on your equipment.

0 - 10  0 = totally unwilling, 5 = neutral, 10 = totally willing

| | RATING | COMMENTS |
|---|---|---|
| Install equipment | ____ | _____ |
| | | _____ |
| Perform diagnostics | ____ | _____ |
| | | _____ |
| Perform hardware maintenance | ____ | _____ |
| | | _____ |
| Use depot maintenance | ____ | _____ |
| | | _____ |

INPU

8. Describe any additional equipment in your organization for which you would like to have on-site maintenance via third party.

_____

_____

_____

_____

9. Please comment on any reservations you may have regarding third party maintenance.

_____

_____

_____

_____

CATALOG NO. _____

# VENDOR QUESTIONNAIRE

Company Name _____

Address _____

_____

_____

Phone _____

President _____

Company Size

____ Under $5 million

____ $5 to $10 million

____ $10 to $20 million

____ $20 to $50 million

____ Over $50 million

Growing at _____% per year

Describe Product(s) _____

_____

_____

_____

_____

_____

_____

Products primarily used by

____ Data processing facility

____ End-user department

____ Consumer

____ Other machine manufacturer



INPU

CATALOG NO. _____

Product primarily marketed as ____ Individual product

____ Unit in a packaged system

____ Component within a unit

Marketed through ____ Direct end-user sales

____ Distributors

____ Systems houses

____ To other equipment manufacturers

Geographic markets ____ Major cities only - number offices:

_____

____ Geographic regions only - Regions:

_____

_____

_____

____ Nationally - Number offices: _____

Number of units in place _____

Estimated number of units per year
to be sold in 1981

_____

1983 _____

What are your general plans for this product over the next 5 years _____

_____

_____

_____

_____

CATALOG NO. _____

## VENDOR QUESTIONS

I. For the current installed base of your products, what percent are maintained by:

____ Your own field force _____%

____ Third-party service force _____%

Other (OEM, etc) _____ _____%

_____ _____%

II. A.

1. What geographic coverage is provided by your field organization?

_____

_____

_____

2. What length of coverage can you provide?

Shifts _____

Days _____

3. What response levels are you committed to for the following

Meantime to Respond _____

Meantime to Repair _____

4. What is the meantime between Failure for your product?

MTBF average _____

MTBF worst case _____

MTBF best case _____



INP

B. What coverage length does the basic service contract provide?

Shifts _____

Days _____

1. What additional fees are charged for additional shifts or days?

_____

_____

_____

2. Do you foresee offering additional shift or day coverage in the future?

____ Yes ____ No

When and Why? _____

_____

_____

3. If a user is far from the nearest service center, is there a zone surcharge added to the maintenance fee?

____ Yes ____ No

Zone 1 _____ miles to _____ miles _____%

Zone 2 _____ miles to _____ miles _____%

Zone 3 _____ miles to _____ miles _____%

Zone 4 _____ miles to _____ miles _____%

4. What is your repair philosophy for on-site maintenance?

a. Component level _____

b. Board level _____

c. Unit level _____

C. What would be the three most important advantages in using a third-party? (as geographic coverage, reduced cost, lack of qualified personnel, etc.)

1. _____

_____

2. _____

_____

3. _____

_____

D. What type of a contractual relationship with the third-party would be most desirable?

_____

_____

_____

E. Would you consider using a third-party if:

1. The third-party would acquire your FE force?

____ Yes ____ No

Why? _____

_____

_____

2. The third-party could provide multiple depots for depot maintenance and repair?

____ Yes ____ No

Why? _____

_____

_____

F. How will your need for a third-party maintenance organization change over the next five years?

1981 ____ Need third-party

____ Don't need

Why? _____

_____

_____

1983 ____ Need third-party

____ Don't need

Why? _____

_____

_____

1985 ____ Need third-party

____ Don't need

Why? _____

_____

_____

G. If you were to contract a third-party, would you prefer that they identify themselves as such to the user or appear to be part of your company?

____ Identify as third-party

____ Image as part of your company

H. Would you prefer a third-party to maintain products in-warranty only, out-of-warranty only, or both?

____ In-warranty only

____ Out-of-warranty only

____ Both

Explain: _____

_____

_____

_____

I. When providing spare parts to the user through a third-party organization, would you prefer that the third-party purchase

the inventory from you and resell to the user or strictly distribute parts owned by you?

____ Purchase and resell

____ Distribute

Comments: _____

_____

_____

_____

J. Do you have system support center or remote diagnostic capability?

____ System support center

____ Remote diagnostics

1) Would you give third-party FEs access to it?

____ Yes

____ No

2) Would the third-party have to pay for this use?

____ Yes

____ No

3) How would this work?

_____

_____

_____

_____

K. Will the increased use of remote diagnostics and the centralization of the field service organization increase or decrease your need for a third-party organization?

____ Increase

____ Decrease



INP

CATALOG NO. _____

____ Same

Comments: _____

_____

_____

_____

L. Other general comments on third-party maintenance?

_____

_____

_____

_____

M. What is the primary application area your products are used in?

_____

_____

_____

N. For your main product, what is the purchase price?

$ _____

1. What is the monthly maintenance fee?

   $ _____/month

2. Annual maintenance/purchase price = _____%

3. What percent of your users are on a standard service contract?

   _____%